

117-2-61-100

**COMPLETION OF WORK REPORT
AND
APPENDIX A THROUGH C**

"DRAFT"

**Massachusetts Military Reservation
Training Range and Impact Area**

**Small Arms Berm Maintenance
Removal of Metallic Lead and Fixation of Leachable Lead**

Prepared for:

NATIONAL GUARD BUREAU
ARLINGTON, VIRGINIA

pursuant to:

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION I
Administrative Order SDWA I-97-1030

Prepared By:

Ogden Environmental and Energy Services, Inc.
Supervising Contractor
Westford, Massachusetts

and

Sevenson Environmental Services, Inc.
Treatment Contractor
Munster, Indiana

September 3, 1998

VOLUME I

279



DEPARTMENTS OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON, VA 22204-1382



August 31, 1998

ARNG Environmental Division

Ms. Jane Dolan
MMR Project Coordinator
U.S. Environmental Protection Agency
J.F.K. Federal Building
Boston, MA 02203-2211

Re: Draft Completion of Work Report for Massachusetts Military Reservation (MMR)
Small Arms Berm Maintenance, Removal of Metallic Lead and Fixation of Leachable
Lead.

Dear Ms. Dolan:

Attached please find the draft completion of work report as required under the Administrative Orders. The report consists of three volumes: the first is "The Completion of Work Report" with Appendix A through C; the second is Appendix D, "Laboratory Analytical Data Reports;" and the third is Appendix E, "Small Arms Range Berms Survey Plats". The Draft Completion Report includes an Executive Summary. Because Appendix D and E are large volumes and contain only analytical data, these are being provided only to the regulatory agencies and are available to review team members through the Ground Water Study Office and to the public through the local libraries. The first volume of the report will be distributed to the Impact Area Review Team. Volume 1 consists of the executive summary and appendix A through C -- project lead removal summary tables and air quality sampling reports.

The Guard would like to point out that once work started, the lead removal project proceeded quickly and efficiently. Response to unexpected material in the berm soil was resolved effectively and safely with the assistance and supervision of the On-site EPA coordinator. Project objectives were exceeded in over 96% of confirmation samples and lead in berm soil was processed to an order of magnitude lower than that required by the work plan. Air Quality monitoring reports show that almost 18,000 cubic yards of material were excavated and transported without any harmful airborne lead or dust exposure to workers or surrounding communities. Although lead ammunition has been used on these ranges for over 30 years, the need for lead treatment was limited to a maximum of 18 feet from the berm face.

NGB is pleased to provide this draft report of the results from the small-arms range lead removal project. We believe our actions satisfy the requirements under the second administrative order regarding the removal of lead from small arms range berms. We also look forward to your comments so we may bring this issue to closure and work toward a resumption of marksmanship training on these ranges. If you have any additional questions or comments regarding the Draft Report, please contact me at (703) 607-7961.

Sincerely,

A handwritten signature in cursive script, appearing to read "R. O. Murphy".

RICHARD O. MURPHY
Lieutenant Colonel, NGB
MMR Project Coordinator

Copies Furnished:
MADEP
Impact Area Review team

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EXECUTIVE SUMMARY

The Berm Maintenance Project entailed lengthy negotiations with USEPA Region I representatives to build a consensus as to the regulations that were applicable to this pollution prevention activity proposed in response to Administrative Order SDWA I-97-1030. The negotiations resulted in the development of a Revised Work Plan dated January 14, 1998. This Revised Work Plan was accepted by USEPA Region I and the program began on February 5, 1998. The Revised Work Plan, under the daily supervision of the on-site USEPA Region I Project Coordinator, provided the guidance for the removal of metallic lead and chemical fixation of leachable lead in berm soils at small arms training ranges located at the Massachusetts Military Reservation (MMR) on Cape Cod, MA. Sixteen (16) bermed small arm ranges were addressed during the project, the soils containing TCLP leachable lead concentrations greater than 5.0 mg/L were removed during the excavation and/or in-situ process activities. The subject ranges included A, B, C, D, E, G, H, I, J, K, KD, N, O, P, SE, and SW.

Ogden Environmental and Energy Services, Inc. (Ogden) functioned as the Supervising Contractor for the National Guard Bureau and Massachusetts National Guard for management of the project. Severson Environmental Services, Inc. (Severson) functioned as the treatment contractor and was responsible for meeting the performance criteria established in the Revised Work Plan utilizing their patented MAECTITE process to reduce (via chemical fixation) leachable lead in the berm soils.

The objective of the berm maintenance program was the removal of the maximum amount of lead munitions from small arms range berm soils, and to minimize the possibility of lead fines (particles too small for physical removal) migrating toward groundwater. The first phase of the program focused on sampling each of the range berms. Samples were collected and analyzed to determine the depth to which soils would be excavated and transported to a Central Processing Site for separation of lead munitions and application of MAECTITE to lead fines (the removal/transportation and application of MAECTITE is referred to as Ex-Situ Processing throughout the document). Through sampling it was also possible to determine the appropriate areas where MAECTITE could be applied directly to the range berms without excavation and transportation to the Central Processing Site (this process is referred to throughout the document as In-Situ Processing).

Severson's MAECTITE process uses a liquid reagent that easily permeates soil and immediately reacts with leachable lead present. The MAECTITE process chemically bonds (rather than physically bind) leachable lead into microscopic, hard, geochemically stable synthetic mineral crystals which form within the soil matrix. These mineral crystals primarily take the form of apatites and anglesites. These minerals are resistant to long term leaching as measured by USEPA established test methods. Apatite minerals are known to exist in the environment for millions of years. MAECTITE has been accepted into USEPA's Superfund Innovative Technology Program (SITE) and

Prequalified Offerers Procurement Strategy (PQOPS). MAECTITE has also been recommended by AFCEE's Technology Evaluation Program.

Approximately 1,125 soil samples were collected and analyzed, in accordance with the Sampling and Analysis Project Plan contained in the Revised Work Plan approved by USEPA. These samples, collected from each of the berms, were used to develop the general Ex-Situ and In-Situ maintenance and processing plan for each individual range. The intent of the sampling activities was to obtain sufficient information to guide the work, some modifications to work plans were made on-site in coordination with the USEPA Region I Project Coordinator.



Excavation of berm soils containing bullet fragments was driven by visual observation. Approximately 17,788 cubic yards of berm soils containing bullet fragments were removed from the subject ranges and taken to a central location for screening and chemical fixation of leachable lead (i.e., Ex-Situ Processing). The processing equipment was a multiple stage, integrated system accepted by USEPA for performance of the work.



Screening of the excavated soil was performed to separate recyclable bullet fragments. The chemical fixation successfully reduced TCLP leachable lead concentrations in 27,952 tons of soil to concentrations less (i.e., better) than USEPA's requirements for the project. This success was documented by the process confirmation samples collected and analyzed in accordance with the Sampling and Analysis Project Plan. These processed soils were subsequently reused for reconstruction of berms at the small arms ranges.

As required by USEPA, 286 soil samples were collected and analyzed from areas that were excavated, but not scheduled to receive additional In-Situ Processing, to confirm that the remaining soils did not contain more than 5.0 mg/L TCLP leachable lead. Analytical results for these post excavation samples document that the residual concentrations of TCLP leachable lead were less than the USEPA approved performance criteria. In the isolated cases where remaining soils did contain more than 5.0 mg/L TCLP leachable lead, the soils were processed via the In-Situ Processing method (see below).

Soils remaining at the berms after excavation activities, but still containing TCLP leachable lead concentrations greater than 5.0 mg/L were further processed in-place. This in-place processing (i.e., In-Situ Processing) was performed on 5,380 cubic yards of berm soils to reduce the concentration of TCLP leachable lead to less than 5.0 mg/L (the established and USEPA accepted project performance criteria). This success was documented by the process confirmation samples collected and analyzed in accordance with the Sampling and Analysis Project Plan.

Highlights of the project include:

- Reduction of TCLP leachable lead by ex-situ processing of excavated berm soils to concentrations significantly better (i.e., lower) than USEPA's approved project performance criteria of 5.0 mg/L. In fact, TCLP leachable lead was reduced to less than 1.7 mg/L in 100 %, less than 0.8 mg/L in 98 %, and less than 0.50 mg/L in 96 % of the process confirmation samples analyzed for the ex-situ processed soils.
- Reduction of TCLP leachable lead by in-situ processing of on-range berm soils to concentrations significantly better (i.e., lower) than USEPA's approved project performance criteria of 5.0 mg/L. In fact, TCLP leachable lead was reduced to less than 0.6 mg/L in 100 % and less than 0.50 mg/L in 97 % of the process confirmation samples analyzed for the in-situ processed soils
- Typically, the highest TCLP leachable lead concentrations were detected within the first two (2) feet of soil within the berm face.
- Vertical migration of TCLP leachable lead (in concentrations greater than 5.0 mg/L) from berms was typically limited to less than ten (10) feet.
- The maximum penetration into a berm to remove recoverable bullet fragments was 16 feet at Range K. Note that this depth is not below ground surface but is a depth approximately perpendicular to the face of the berms.
- Collection and analysis of 1,125 pre-excavation berm soil samples to characterize the total lead and TCLP leachable lead concentrations present as a result of small arms training activities.
- Total lead and TCLP leachable lead were observed at concentrations as high as 12,200 mg/kg and 734 mg/L, respectively.
- Analysis of 160 pre-excavation berm soil samples to characterize total copper, total iron, total nickel, and total antimony concentrations present.
- Excavation and transportation of 17,788 cubic yards of berm soils to a central processing area at an average production rate of over 300 cubic yards per day.
- Collection and analysis of 286 post-excavation berm soil samples for total lead and TCLP leachable lead to confirm remaining soils contained less than 5.0 mg/L TCLP leachable lead.

- Analysis of 31 post-excavation berm soil samples to characterize total copper, total iron, total nickel, and total antimony present.
- Screening of the excavated berm soils for recovery of recyclable bullet fragments at the central processing area in an enclosed screening and processing system.
- Chemical fixation of leachable lead in 27,952 tons of screened range berm soils at an average production rate of over 450 tons per day.
- Chemical fixation of leachable lead in 5,380 cubic yards of berm soils without removing the soil from the ranges at an average production rate of 150 cubic yards per day.
- Reconstruction of the berms at two ranges to expedite the MAARNG's return to small arms training.
- Completion of the required activities five (5) weeks ahead of the schedule required by the Administrative Order.
- Completion of the field activities without a lost time accident.
- Completion of the activities under the daily oversight of USEPA's full-time on-site representative.

This project was a success as the berm maintenance program implemented at MMR was successful in removing metallic lead and chemically fixing leachable lead in the berm soils at 16 small arms ranges as required by USEPA's Administrative Order. The patented MAECTITE process not only achieved, but exceeded, the performance criteria for reduction of TCLP leachable lead in berm soils. The range berm maintenance program and use of innovative technology provided a cost-effective solution to removing metallic lead from the environment and minimizing the possibility of leachable lead migrating into the underlying groundwater aquifer.



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Appendix B - Air Monitoring Analytical Data

Central Processing Area

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Appendix C - Photographic Documentation

Volume II

Appendix D - Laboratory Analytical Data

Range A Analytical Data Reports

Range B Analytical Data Reports

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Range D Analytical Data Reports

Range E Analytical Data Reports

Range G Analytical Data Reports

Range H Analytical Data Reports

Range I Analytical Data Reports

Range J Analytical Data Reports

Range K Analytical Data Reports

Range KD Analytical Data Reports

Range N Analytical Data Reports

Range O Analytical Data Reports

Range P Analytical Data Reports

Range SE Analytical Data Reports

Range SW Analytical Data Reports

Ex-Situ and In-Situ Process Confirmation Analytical Data Reports

Volume III

Appendix E - Small Arms Range Berms Survey Plats

Individual Ranges Pre- and Post-Excavation

1.0 INTRODUCTION

Ogden Environmental and Energy Services, Inc. (Ogden) was retained by the National Guard Bureau (NGB) and accepted by the United States Environmental Protection Agency (USEPA) as Supervising Contractor for performing the work required by USEPA Region I's Administrative Order No. SDWA-I-97-1030. Ogden in turn subcontracted Severson Environmental Services, Inc. (Severson) as the Treatment Contractor. This team of Ogden and Severson was responsible for the development of a Draft Work Plan, responding to USEPA and Massachusetts Department of Environmental Protection (MADEP) comments, supporting NGB during negotiations with the USEPA and MADEP, developing a Revised Work Plan, implementation of the activities described in the Revised Work Plan, and development of this Completion of Work Report (Report).

This Report is intended to provide the reader with an overview of the activities implemented to remove metallic lead and chemically fix leachable lead in soils at 16 bermed small arms training ranges at the Massachusetts Military Reservation (MMR) located on Cape Cod, MA.

The Report is organized to provide an overview of the scope of activities (Section 2.0), present a summary of the laboratory data generated during the activities (Section 3.0), provide a listing of reference documents (Section 4.0), and provide a statement of completion of work as required by the Administrative Order (Section 5.0).

Appendices contain supporting documentation for the report.

2.0 SCOPE OF ACTIVITIES

2.1 Work Plan Development

Ogden and Severson prepared a Draft Work Plan (dated August 29, 1997). This Draft Work Plan was submitted to USEPA and MADEP for review and comment. Comments were received on October 1, 1997 from MADEP and on October 10, 1997 from USEPA. Lengthy negotiations concerning applicable regulations and project performance criteria occurred during the time between receipt of comments on the Draft Work Plan and issuance of the conditional letter of approval referenced below. Ogden, on behalf of NGB, submitted responses to USEPA and MADEP comments on October 24, 1997.

USEPA provided condition approval (dated December 24, 1997) of the Draft Work Plan based upon the results of the negotiations with NGB. A Revised Work Plan was prepared to incorporate the changes agreed upon by NGB and USEPA. This Revised Work Plan was submitted to USEPA and MADEP. USEPA subsequently issued a letter of approval (dated January 30, 1998) of the Revised Work Plan.

Some of the highlights of the Revised Work Plan and USEPA's acceptance of the Revised Work Plan included requirements for the following:

- Removal of metallic lead (i.e., bullet fragments) and chemical fixation of leachable lead (as determined by the TCLP analytical method) in berm soils at 16 bermed small arms ranges including Ranges A, B, C, D, E, G, H, I, J, K, KD, N, O, P, SE and SW (as noted on Figure 2-1).
- Excavation, transportation to the Central Processing Area, and ex-situ MAECTITE processing of berm soils containing recoverable bullet fragments.
- Ex-situ MAECTITE processing of berm soils containing TCLP leachable lead in concentrations exceeding 5.0 mg/L after screening of recoverable bullet fragments.
- Integrated ex-situ processing system (i.e., totally enclosed from point of soil introduction through output point of the processed soils).
- Confirmation of successful ex-situ processing within 90 days from excavation of soils from a given range.
- In-situ MAECTITE processing of berm soils not containing recoverable bullet fragments but still containing TCLP leachable lead in concentrations exceeding 5.0 mg/L.
- Processing of soils containing TCLP leachable lead greater than 5.0 mg/L to a project performance goal concentration less than 5.0 mg/L.
- Aggressive dust control in all areas of project activity.
- Analysis of all soil samples for both TCLP leachable lead and total lead.
- Analysis of 10 % of the soil samples (those sent off-site for QA/QC purposes) for total antimony, copper, nickel, and iron in addition to the base requirement for analysis of total lead and TCLP leachable lead.
- Completion of field activities by not later than July 30, 1998.



2.2 Berm Survey

Cape Surv (Sevenson's subcontractor) conducted pre-excavation surveys of the berms to form a baseline for calculations of excavation volumes. Photographs of the berms prior to excavation are included in Appendix C. Post-excavation surveys were performed after completion of soil excavation activities. An average end area method was utilized to calculate the volume of soils excavated from each range. Copies of the pre- and post-excavation survey plats are contained in Appendix E (Volume III).

2.3 Mobilization

Ogden and Sevenson mobilized field personnel, site support facilities (office trailers, lunch trailer, decontamination trailer, small equipment storage trailer, sanitary facilities), mobile laboratory trailers, heavy equipment (excavators, dozers, loaders, skid loader, tandem axle dump trucks, water trucks), and processing equipment (screening equipment, pugmill, storage silos, liquid storage tanker) to the site beginning the week of January 21, 1998. Field crews were on-site immediately after NGB's receipt of USEPA's January 30, 1998 letter providing approval of the Revised Work Plan.

The temporary site support facilities and ex-situ processing equipment were established at the location near Range Control as proposed in the Revised Work Plan. See Figure 2-1 for the location of the site support and ex-situ process area. Photographs of the support area and process equipment set-up are contained in Appendix C. The processing area, including stockpiles were surrounded with temporary fencing to designate the restricted work area and provide controlled (i.e., limited access to the work site).

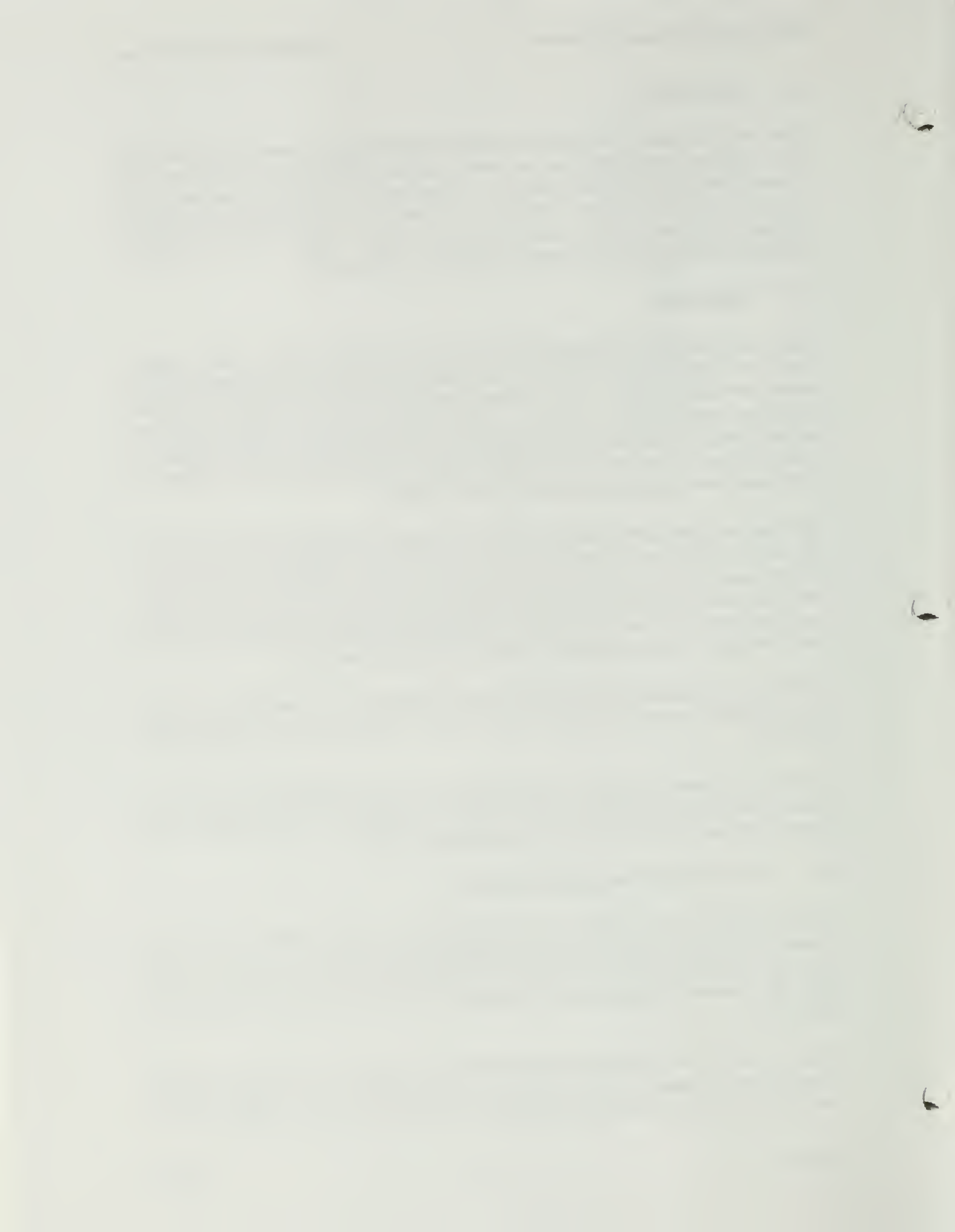
MAECTITE was sprayed on the ground surface in all areas for stockpiling of materials (pre-processing, post-processing, oversize, and No. 4 retained) prior to material being stockpiled.

Equipment refueling operations were reviewed with the Fire Marshall and a refueling permit obtained for the duration of the project. In addition, a backup self-contained storage tank was mobilized to the site and a permit obtained.

2.4 Pre-Excavation Sampling and Analysis

Ogden, Sevenson, and USEPA's on-site representative worked together to select and visually identify pre-excavation sample collection locations based on agreed upon lateral spacing of 25 feet. Identification of pre-excavation sample collection started on February 16, 1998. Sevenson personnel and subcontractor collected pre-excavation samples from the berms.

Sample collection was initiated utilizing the methods identified in the Revised Work Plan (manual and/or hydraulic push) but were found to be inefficient at obtaining sufficient sample volumes based upon the material types encountered beyond the initial two feet of



the berms. Working with USEPA's on-site representative, alternative methods (i.e., backhoe trenching) were implemented for the pre-excavation sample collect. Pre-excavation samples were initially collected in two foot intervals to a depth of six feet. In locations where the laboratory analytical results indicated TCLP leachable lead at concentrations greater than 5.0 mg/L, additional samples were collected at two foot intervals from those locations to depths that the TCLP leachable lead concentrations were less than 5.0 mg/L. "Depths" refer to either vertical distance below the ground surface into the toe of a berm or the distance into the face of a berm approximately perpendicular to the face.

Pre-excavation soil samples were not collected from the pop-up protectors on Range E based upon a field agreement with USEPA's on-site representative. The field agreement stipulated that each of the pop-up target protectors would be excavated and transported to the central processing area based upon the visual presence of bullet fragments.

Pre-excavation soil samples were not collected from the pop-up target protectors on Ranges SE and SW based upon a field agreement with USEPA's on-site representative. After discussion of the function of the pop-up target protectors, USEPA's on-site representative indicated that sampling of each of the pop-up protectors would not be necessary provided visual bullet fragments were excavated from each of the pop-up target protectors. A further stipulation to the field agreement was that a limited number of representative post-excavation soil samples would be collected to confirm that TCLP leachable lead was not greater than 5.0 mg/L.

Due to delays in obtaining electrical service at the field office trailer and mobile laboratory area, the collected pre-excavation soil samples were initially shipped off-site for analysis at Waste Stream Technologies, Inc. Samples shipped off-site initially included samples from Ranges G, H, K, KD, and O. Upon obtaining electrical service and completion of calibration of the mobile laboratory equipment, sample analysis was conducted on-site in the mobile laboratory. As required by the Revised Work Plan and Project Quality Assurance Plan, approximately 10 % of the samples analyzed in the onsite laboratory were also analyzed at Waste Stream Technologies for QA/QC review purposes.

A total of 1,125 discrete pre-excavation samples were collected and analyzed for total lead and TCLP leachable lead. Of the 1,125 samples, 821 were analyzed on-site and 304 were analyzed off-site. Of the 1,125 samples, 160 were analyzed off-site for total metals including total antimony, total copper, total nickel, and total iron in addition to the baseline requirement for analysis of total lead and TCLP leachable lead. An additional 96 samples were analyzed for total lead and TCLP leachable lead as duplicates at Waste Stream Technologies for QA/QC purposes. The Table 2-1 provides a summary by range of the number of pre-excavation soil samples collected.

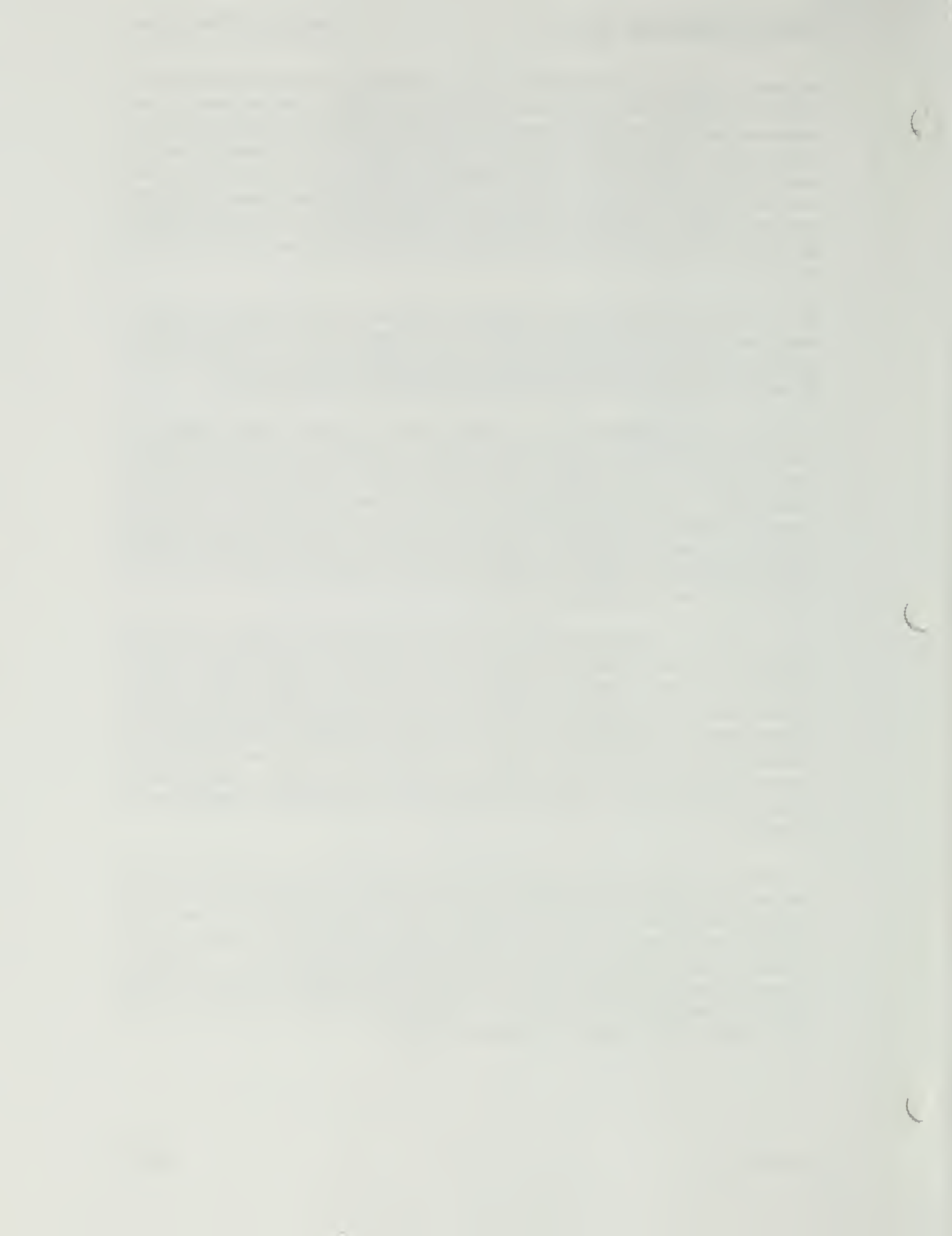


Table 2-1
Pre-Excavation Berm Soil Sample Collection

Range	Number of Pre-Excavation Samples Analyzed
A	86 On-Site TCLP/Total Lead 8 Off-Site QA/QC & Total Metals
B	183 On-Site TCLP/Total Lead 17 Off-Site QA/QC & Total Metals
C	123 On-Site TCLP/Total Lead 14 Off-Site QA/QC & Total Metals
D	24 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
E	114 On-Site TCLP/Total Lead 12 Off-Site QA/QC & Total Metals
G	43 Off-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
H	9 On-Site TCLP/Total Lead 64 Off-Site TCLP/Total Lead/Total Metals
I	118 On-Site TCLP/Total Lead 11 Off-Site QA/QC & Total Metals
J	56 Off-Site TCLP/Total Lead 5 Off-Site QA/QC & Total Metals
K	2 On-Site TCLP/Total Lead 54 Off-Site TCLP/Total Lead 5 Off-Site QA/QC & Total Metals
KD	39 Off-Site TCLP/Total Metals 4 Off-Site QA/QC & Total Metals
N	96 On-Site TCLP/Total Lead 9 Off-Site QA/QC & Total Metals
O	5 On-Site TCLP/Total Lead 48 Off-Site TCLP/Total Lead 1 Off-Site QA/QC & Total Metals
P	61 On-Site TCLP/Total Lead 6 Off-Site QA/QC & Total Metals
SE	N.A.
SW	N.A.
	1,125 TCLP/Total Lead 160 Total Metals 96 QA/QC

2.5 Data Review and Individual Range Processing Plan Development

Upon receipt and review of the pre-excavation sample analytical data, range specific processing plans were developed. The range specific processing plans were a simple, easy to understand graphical representation of the berm with the method of processing (ex-situ vs. in-situ) identified based upon the reported concentration of TCLP leachable lead compared to the project performance criteria of 5.0 mg/L TCLP leachable lead. These plans were utilized by the excavation crew in conjunction with visual criteria for recoverable bullet fragments to determine the limits of excavation or in-situ MAECTITE processing.

Copies of the pre-excavation sample analytical data were provided to USEPA's on-site representative during the project upon receipt of QC reviewed data for a given range.

Summary tables for the pre-excavation soil sample analytical data are presented in Section 3. The actual laboratory analytical reports are contained in Appendix D (Volume II). The data from the mobile laboratory compared very well to the duplicates sent to the off-site laboratory, well within the QA/QC guidelines identified in the Revised Work Plan.

Table 2-2 provides a range by range summary of the highest reported concentrations of TCLP leachable lead, total lead, total copper, total iron, total nickel, and total antimony in the pre-excavation berm soil samples. The maximum concentrations reported in the pre-excavation soil samples were as follows: TCLP leachable lead (734.1 mg/L), total lead (12,200 mg/kg), total copper (191 mg/kg), total iron (15,000 mg/kg), total nickel (78 mg/kg), and total antimony (59.8 mg/kg).

Table 2-2
Highest Observed Metals Concentrations
Pre-Excavation Berm Soil Samples

Range	TCLP Leachable Lead (mg/L)	Total Lead (mg/kg)	Total Copper (mg/kg)	Total Iron (mg/kg)	Total Nickel (mg/kg)	Total Antimony (mg/kg)
A	84.29	767.8	107	4420	1.9	< 1.0
B	734.1	11,546	54.4	5010	3.0	3.2
C	91.33	1,339.7	5.8	2250	< 1.0	2.8
D	250.3	5,003	191.0	3320	1.5	6.3
E	6.21	290.8	10.4	3860	1.7	< 1.0
G	525	12,200	9.3	3960	1.7	< 1.0
H	181	3670	80.5	15,000	7.4	10.5
I	325.3	2,703	183.0	6,440	78.0	59.8
J	251	5,090	148.0	11,540	12.0	9.6
K	315	4,450	69.5	10,500	6.2	< 1.0
KD	5.7	130	6.7	8,820	21.1	< 1.0
N	43.78	1,668	5.4	8,900	7.5	< 1.0
O	126	1,570	44.6	9,020	7.2	< 1.0
P	32.76	1,189.9	85.4	12,400	7.5	< 1.0
SE	--	--	--	--	--	--
SW	--	--	--	--	--	--

NOTES:

This table indicates the highest reported concentrations of individual metals in pre-excavation soils samples.

Analytical methods were as follows:

TCLP leachable lead by 40 CFR, Part 268, Appendix I (TCLP) SW-846, Method 1311 followed by USEPA Method 7420.

Total Lead, Total Copper, Total Iron, Total Nickel, and Total Antimony by SW-846, Method 6010.

All final Post-Excavation Confirmation samples confirmed that TCLP leachable lead concentrations in soils left in-place were less than 5.0 mg/L.

All In-Situ Process Confirmation samples confirmed that TCLP leachable lead concentrations were reduced to less than 5.0 mg/L (100 % < 0.6 mg/L and 97 % < 0.5 mg/L).

All Ex-Situ Process Confirmation samples confirmed that TCLP leachable lead concentrations were reduced to less than 5.0 mg/L (100% < 1.7 mg/L, 98 % < 0.8 mg/L, and 96 % < 0.5 mg/L).

2.6 Excavation and Transportation

Initially, clearance of the range berms for UXO related material was not necessary, however, after encountering UXO at Range I and suspected UXO related materials at Range O during excavation, the assistance of the Air National Guard 102 EOD personnel was obtained. The EOD personnel conducted sweeps for UXO material at the remaining ranges prior to initiation of excavation activities in order to maintain a safe work environment for the excavation crews.

Site control was established at each of the individual ranges prior to commencing excavation activities. The site control measures were comprised of rope barriers to delineate the exclusion zone with appropriate warning signs posted. A contamination reduction zone was also established for both personnel and vehicles.

Soils were excavated from the berms according to visual criteria (presence of recoverable bullet fragments). USEPA's on-site representative accepted the depth of excavation at each of the ranges based upon his personal inspection of the berm surface. The sections of a given berm excavated on a particular day were noted in the daily production reports. Copies of the range specific excavation plans (as actually completed) are included in Appendix A.

Excavation and transportation activities commenced on February 27, 1998 beginning at Range G and were completed on June 11, 1998 at Range A. The excavation activities were completed three (3) weeks ahead of the project schedule (as submitted with Progress Report No. 6 dated March 10, 1998) despite incurring 15 days of weather related delays and three (3) days of UXO clearance support delays. A total of 17,788 cubic yards of berm soils were excavated and transported to the Central Processing Area. Table 2-3 presents a range by range summary of the quantity of soil excavated.

Soils not containing bullet fragments, but still containing TCLP leachable lead greater than 5.0 mg/L based upon the data from the pre-excavation sample collection and analysis efforts, were left in-place to be addressed by in-situ methods described in Section 2-9.

The maximum excavation of a berm to remove recoverable bullet fragments was 16 feet into the berm at Range K. Ranges A and H were also excavated further into the berm (10 feet at each range) than was originally thought would be necessary. This indicates that the berms may have been refaced sometime in the past. Note that these "depths" are not below ground surface but are approximately perpendicular to the original face of the berms. Photographs of the berms during and after completion of excavation activities are included in Appendix C.

The excavated soils were directly loaded into tandem axle dump trucks or stockpiled in the toe area of the berm for loading when trucks were available. The trucks were

decontaminated as discussed below, and the soils covered with a tarp for transportation to the central processing area.

Table 2-3
Summary of Soil Excavation Quantities

Range	Quantity of Soil Excavated (cubic yards)
A	3328
B	1869
C	1360
D	207
E – Berm	1201
E - Pop-ups	493
G	955
H	693
I	527
J	697
K	2699
KD	380
N	540
O	410
P	904
SE Pop-ups	693
SW Pop-ups	832
Total Quantity Excavated	17,788 cubic yards



Delays in the excavation activities were incurred during work at Ranges I, J, and O. These delays were related to encountering UXO (Range I), buried drums (Range J), and suspected UXO related material (Range O). Each of these un-anticipated events is briefly discussed below.

When in-situ processing crews discovered a suspected UXO in the toe of the secondary berm on Range I, all work activities were immediately halted. Range Control personnel at MMR were contacted and the MAANG 102nd Explosives and Ordinance Demolition (EOD) personnel were contacted. The EOD responded and determined that the suspected UXO was indeed "live" and subsequently restricted access to the area. Due to EOD's assessment of the condition of the round, EOD determined that it was safest to demolish the round in-place instead of attempting to move the round to a demolition area. After obtaining USEPA's approval, the UXO was demolished in-place by EOD. According to EOD personnel, the round was a luminary round, not a high explosives round. Photographs of the round before and after demolition are included in Appendix C.

Excavation activities in the left most portion of the berm at Range J uncovered approximately 40 drums. The drums were 55-gallon, steel drums with holes punched in the bottom of the drums, the tops bend partially open, and filled with sand. Even though MMR personnel thought that the drums were previously used as target holders (40 drums at two per each of 20 firing positions), the MADEP was contacted by MAARNG personnel to respond to the discovery of the drums. MADEP's contractor Cyn Environmental Services was responsible for the characterization of the sand contained in the drums. The sand contained in the drums was not contaminated, based upon analysis of samples collected by Cyn Environmental Services. After obtaining the analytical results, MAARNG personnel were to submit follow-up paperwork to the MADEP concerning the drums. MMR personnel emptied and removed the drums from the Range. Upon removal of the drums, excavation of the left most portion of the Range J berm was completed. Photographs of the subject drums are included in Appendix C.

Additional suspected UXO material was discovered during excavation activities at the berms on Range O. Again, EOD personnel were contacted to respond to the situation. EOD personnel determined that the suspected UXO were not "live", but rather a spent rocket propellant unit and four (4) spent or dud fin rockets. EOD personnel removed the materials from the area and excavation activities resumed. Photographs of these suspected UXO materials are included in Appendix C.

Dust control was provided as necessary during excavation via a water spray. A water truck was present at the range during excavation activities. Minimal dust control was necessary as the berm soils tended to maintain a fairly moderate to high moisture content and visible dust was rarely observed during implementation of the work.

Air monitoring was conducted in accordance with Section 22.0 of the Health and Safety Plan included in the Revised Work Plan. Typically, down wind concentrations were no higher than up wind (or background) results. In the isolated cases where down wind

readings were higher than up wind (or background), readings were still less than an order of magnitude higher. At no time during site activities did the work generate enough dust to require an upgrade of respiratory protection to air purifying respirators. All operations were conducted without the need to provide worker respiratory protection. Section 3.2 further discusses the results of air monitoring activities.

Erosion control measures were not necessary based upon the field conditions encountered. USEPA's on-site representative did not direct the contractor to erect erosion control measures at the range berms.

Decontamination of personnel at the ranges was accomplished in accordance with the project health and safety plan (included in the Revised Work Plan) within the established contamination reduction zones. Vehicles were decontaminated via dry methods (i.e., shovel and broom) to remove gross accumulation of soils from the exterior of vehicles transporting the excavated soils to the central processing area. Equipment was decontaminated via dry methods (i.e., shovel and broom) to remove gross accumulation of soils from the exterior of equipment prior to transportation to the next range. USEPA's on-site representative accepted this method as adequate.

2.7 Post Excavation Sampling and Analysis

Upon completion of excavation activities at a given range, post-excavation soil samples were collected to document residual concentrations of TCLP leachable lead in sections of the berm not scheduled to receive in-situ MAECTITE processing. Samples were collected at the mid-point between pre-excavation sample locations as required by USEPA's Conditional Approval letter dated December 24, 1997. The post-excavation soil samples were analyzed for both total lead and TCLP leachable lead. The TCLP leachable lead concentrations were utilized to confirm that excavation activities had accomplished the project goal of removing berm soils containing TCLP leachable lead at concentrations greater than 5.0 mg/L. All of the post-excavation data met the project performance criteria.

The post-excavation sample analytical data was submitted to USEPA's on-site representative throughout the project upon receipt of QC reviewed data for a given range.

A total of 286 discrete post-excavation samples were collected and analyzed on-site for total lead and TCLP leachable lead. Of the 286 samples, 31 were also analyzed off-site for total metals including total antimony, total copper, total nickel, and total iron in addition to the baseline requirement for analysis of total lead and TCLP leachable lead. These 31 samples were also analyzed for total lead and TCLP leachable lead as duplicates at Waste Stream Technologies for QA/QC purposes. Table 2-4 provides a summary by range of the number of post-excavation soil samples collected.

Summary tables for the post-excavation soil sample analytical data are presented in Section 3. The actual laboratory analytical reports are contained in Appendix D (Volume

II). The data from the mobile laboratory compared very well to the duplicates sent to the off-site laboratory, typically well within the QA/QC guidelines identified in the Revised Work Plan.

Table 2-4
Post-Excavation Berm Soil Sample Collection

Range	Number of Post-Excavation Samples Analyzed
A	39 On-Site TCLP/Total Lead 3 Off-Site QA/QC & Total Metals
B	49 On-Site TCLP/Total Lead 6 Off-Site QA/QC & Total Metals
C	30 On-Site TCLP/Total Lead 3 Off-Site QA/QC & Total Metals
D	5 On-Site TCLP/Total Lead 1 Off-Site QA/QC & Total Metals
E	26 On-Site TCLP/Total Lead 3 Off-Site QA/QC & Total Metals
G	13 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
H	23 On-Site TCLP/Total Lead 1 Off-Site QA/QC & Total Metals
I	12 On-Site TCLP/Total Lead
J	13 On-Site TCLP/Total Lead 1 Off-Site QA/QC & Total Metals
K	11 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
KD	6 On-Site TCLP/Total Lead 1 Off-Site QA/QC & Total Metals
N	15 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
O	11 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
P	12 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
SE	7 On-Site TCLP/Total Lead
SW	14 On-Site TCLP/Total Lead 2 Off-Site QA/QC & Total Metals
	286 TCLP/Total Lead 31 Total Metals 31 QA/QC

2.8 Ex-Situ Processing

The ex-situ MAECTITE process is a chemical fixation that immobilizes leachable lead by chemically bonding leachable lead. The product formed from the reaction are geochemically stable synthetic mineral crystals within the soil matrix. The crystals are primarily apatites and anglesites. The product of the MAECTITE reaction does not need to be maintained in a specific pH range to remain insoluble. The material processed with MAECTITE is stable and the bioavailability of lead greatly reduced.

The ex-situ processing equipment was setup as presented in the Revised Work Plan with the additional modification of being total enclosed as required by USEPA's letter of Approval (dated January 30, 1998) of the Revised Work Plan. Photographs of the processing equipment are included in Appendix C.

Excavated soils transported from the small arms range berms were stockpiled on an area sprayed with MAECTITE prior to the first load of excavated material being delivered to the central processing area.

The excavated soils were dumped in the pre-processing soil stockpile area. A dozer pushed the material towards the screening operation into a stockpile. Composite samples of the pre-processing soil stockpile were collected by Severson and analyzed for TCLP leachable lead. The purpose of the pre-processing sample collection and analysis was to confirm that the soils to be processed were within an acceptable range of TCLP leachable lead concentrations for the MAECTITE dose rate being utilized in the ex-situ process.

Because of the requirement for post-processing sample collection and analysis, USEPA's on-site representative advised the Supervising Contractor that he would not require the collection and analysis of pre-processing soil samples provided that all soils passing through the pug mill would receive an application of MAECTITE. This was agreed to so that the processing of the soils would not be delayed for pre-processing analytical results. All soils passing through the pug mill received an application of MAECTITE per this field agreement.

The pre-processing soil stockpile was feed into the first section of the screening plant utilizing a track excavator. The first section of the screening plant consisted of a 6-inch shredder unit that the soil was feed into from the top. Large oversize rocks were removed from the top of the screen (stockpiled elsewhere on-site) and the material passing the 6-inch screen moved via an elevating conveyor to the top of the next screening step. At the discharge of the elevating conveyor, the materials dropped onto screen stack consisting of a 2-inch screen and a No. 4 screen.

Oversized material retained on the 2-inch screen (stones larger than 2 inches) fell off to the side of the screening operation and was relocated to an oversize material stockpile for management by the MAARNG. This material was relocated with a rubber tire loader to a

oversize stockpile area. The stockpile area had been sprayed with MAECTITE prior to the oversize material being placed on the ground.

Approximately 289 cubic yards of oversize material was sprayed with MAECTITE as specified in the Revised Work Plan before the MAARNG and USEPA's on-site representative discussed potential alternative uses for the material, over than being returned to the small arms ranges. The NGB instructed the Supervising Contractor to stop MAECTITE application to the oversize material pending MAARNG submittal of a plan to USEPA concerning alternate methods to render the oversize material suitable for alternative uses. Approximately 750 cubic yards of non-MAECTITED oversize material was left stockpiled at the central processing area.

Material retained on the No. 4 screen (bullet fragments, bullet jacketing, small stones) was shaken off onto a stack-off conveyor. The stack-off conveyor piled the No. 4 retained material beside the screening operation for management for recycling by the MAARNG. Due to the rapid accumulation of material retained on the No. 4 screen and limited space available in the central processing area, the No. 4 retained material was relocated with a rubber tire loader to a separate stockpile area. This stockpile area had also been sprayed with MAECTITE prior to the No. 4 retained material being placed on the ground. Due to high moisture content of the pre-processing stockpiled soils, some of the material retained on the No. 4 screen was found to still have soil adhering to the surface of the small stones. Materials displaying this characteristic were re-screened to maximize the soil processed with MAECTITE for return to the range berms.

Material passing both the 2-inch and No. 4 screens was fed directly into the pug mill hopper. From the pug mill hopper, the material was feed onto an inclined conveyor/weight belt for feed rate measurement and control. As the material entered the pug mill chamber (from the discharge end of the inclined conveyor/weight belt), liquid MAECTITE reagents and water were added along with lime kiln dust as a buffer agent for blending in the pug mill. The chemically fixed material discharged from the end of the pug mill onto the ground and was relocated with a rubber tired loader to post-processing soil stockpile locations.

The post-processing soil stockpiles were sampled and the collected sample analyzed for TCLP leachable lead when approximately 500 tons of soil had been processed. A total of 56 post-processing soil samples were collected to confirm that the ex-situ MAECTITE process had successfully reduced TCLP leachable lead to less than 5.0 mg/L. None of the 56 lots (approximately 500 tons) of processed soil failed to meet the established project performance criteria on the first processing attempt - no reprocessing was required.

In fact, the ex-situ process not only met but exceeded the project performance criteria:

- ⇒ 100 % less than 1.7 mg/L TCLP leachable lead.
- ⇒ 98 % less than 0.8 mg/L TCLP leachable lead.

4. The fourth part of the document discusses the consequences of failing to maintain accurate records. It states that individuals who fail to comply with the requirements may be subject to fines and penalties, and that the integrity of the financial system may be compromised.

6. The sixth part of the document discusses the role of the government in regulating the financial system. It states that the government must ensure that the financial system is fair and transparent, and that it must take action to prevent and detect fraud.

⇒ 96 % less than 0.50 mg/L TCLP leachable lead.

The daily production reports included tracking of the daily quantity and total quantity to date of ex-situ MAECTITE processed material. Daily production rates varied through the project. The highest production rate achieved was 1,300 tons during a work day. The typical production rate was in the due to moisture content in the soils, availability of stockpiled material, but was approximately 400 to 600 tons per day. Ex-situ processing activities started on March 5, 1998 and were completed on June 15, 1998. The ex-situ processing activities were completed four (4) weeks ahead of the project schedule despite incurring 15 days of weather related delays and three (3) days of UXO clearance support delays. A total of 27,952 tons of screened berm soils were run through the process.

All ex-situ processing was completed and confirmation analytical results available for review within 90 days of the soils being excavated from a given range berm. In other words, less than 90 days transported from the time soils were excavated from a berm, transported to the central processing area, run through the ex-situ process, processed material sampled and analyzed, and the analytical results reviewed to confirm compliance with project performance criteria of reducing TCLP leachable lead to less than 5.0 mg/L.

Additional dust control, beyond that occurring from the addition of liquid reagents and water in the pug mill, was not necessary during the ex-situ processing of berm soils due to the naturally high moisture content of the excavated materials. USEPA's on-site representative did not, during the course of the project, have to request increased dust control measures.

Erosion control measure in the central processing area were also not requested by USEPA's on-site representative. Minimal rainfall during the course of the project negated the need for construction of erosion control features.

Air monitoring was conducted in accordance with Section 22.0 of the Health and Safety Plan included in the Revised Work Plan. Typically, down wind concentrations were no higher than up wind (or background) results. In the isolated cases where down wind readings were higher than up wind (or background), readings were still less than an order of magnitude higher. At no time during site activities did the work generate enough dust to require an upgrade of respiratory protection to air purifying respirators. All operations were conducted without the need to provide worker respiratory protection. Section 3.2 further discusses the results of air monitoring activities.

Although not called out in the Revised Work Plan, numerous large boulders were encountered during excavation at some of the range berms. These boulders were not loaded for transportation to the central processing area. Rather, these boulders were either stacked on the range or pushed over the back of the range berm. These boulders were sprayed with liquid MAECTITE as was specified for oversize materials separated from the soils (on the 6-inch shredder screen) in the central processing area. Photographs of this activity are included in Appendix C.

2.9 In-Situ Processing

After completion of excavation to remove recoverable bullet fragments, confirmed at each range by USEPA's on-site representative, in-situ MAECTITE processing was implemented as necessary. In-situ processing was necessary only if the range specific processing plan (see Section 2.5) indicated that sections of the berm or area within 10 feet in front of the toe of the berm still contained TCLP leachable lead in excess of 5.0 mg/L or post-excavation soil sample analytical results indicated the presence of TCLP leachable lead in excess of 5.0 mg/L.

In-situ processing was completed at Ranges G, H, I, J, K, N, O, P, A, B, C and D based upon the pre-excavation and/or post-excavation sample data and range specific processing plans. In-situ processing was not required at Ranges KD, SE, SW, or E based upon pre-excavation and post-excavation sample data meeting the established project performance criteria.

In-situ processing consisted of applying liquid MAECTITE reagents to the soil in the toe (if this was the section requiring in-situ processing) or pulling down a section of the berm to be addressed into the area in front of the berm and applying liquid MAECTITE reagents. The reagents and the soil were then blended using a track excavator. Photographs of the in-situ process are included in Appendix C.

The pulling down of the section of the berm to be addressed represents a change from the proposed method of applying MAECTITE directly to the berm. Based upon the assumed effective depth of 9 inches on a sloped surface versus 18 to 24 inches on level areas, USEPA's on-site representative agreed that pulling down the material into the area in front of the berm would be more efficient and meet the intent of the work plan requirements.

At range berms with multiple depth intervals at a given section that required in-situ processing, processed soils were laid aside and then the additional depth interval soils were pulled down into the area in front of the berm.

The highest daily production rate achieved for in-situ processing was 511 cubic yards. Typical daily production was in the 100 to 200 cubic yards per day range. A total of 5,323 cubic yards of on-range soils were processed via the in-situ methods. In-situ processing was started on arch 19, 1998 at Range G and completed on June 8, 1998 at Range A. The in-situ processing activities were completed five (5) weeks ahead of the project schedule despite incurring 15 days of weather related delays and three (3) days of UXO clearance support delays. Table 2-5 presents a range by range summary of the quantity of on-range soils processed utilizing the in-situ methodology.

Table 2-5
Summary of In-Situ Processing Quantities

Range	Quantity of Soil Processed (cubic yards)
A	57
B	1974
C	334
D	113
E - Berm	--
E - Pop-ups	--
G	313
H	546
I	962
J	206
K	263
KD	--
N	93
O	408
P	111
SE Pop-ups	--
SW Pop-ups	--
Total Quantity Processed	5,380 cubic yards



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The maximum penetration into a berm to process soils containing TCLP leachable lead was 18 feet at Range K. Other ranges that required in-situ processing to depths greater than originally anticipated included B (12 feet), H (14 feet) and I (12 feet). Note that these "depths" are not below ground surface but are approximately perpendicular to the original face of the berms.

Upon completion of blending, an in-situ process confirmation sample was collected. The samples were analyzed in the on-site mobile laboratory for TCLP leachable lead to confirm that the in-situ processing had successfully reduced TCLP leachable lead to less than 5.0 mg/L. A total of 29 post-processing soil samples were collected to confirm that the in-situ MAECTITE process had successfully reduced TCLP leachable lead to less than 5.0 mg/L.

In fact, the in-situ process not only met but exceeded the project performance criteria:

- ⇒ 100 % less than 0.6 mg/L TCLP leachable lead.
- ⇒ 97 % less than 0.5 mg/L TCLP leachable lead.

Air monitoring was conducted in accordance with Section 22.0 of the Health and Safety Plan included in the Revised Work Plan. Typically, down wind concentrations were no higher than up wind (or background) results. In the isolated cases where down wind readings were higher than up wind (or background), readings were still less than an order of magnitude higher. At no time during site activities did the work generate enough dust to require an upgrade of respiratory protection to air purifying respirators. All operations were conducted without the need to provide worker respiratory protection. Section 3.2 further discusses the results of air monitoring activities.

Erosion control measures were not necessary based upon the field conditions encountered. USEPA's on-site representative did not direct the contractor to erect erosion control measures at the range berms.

Decontamination of personnel at the ranges was accomplished in accordance with the project health and safety plan (included in the Revised Work Plan) within the established contamination reduction zones. Equipment was decontaminated via dry methods (i.e., shovel and broom) to remove gross accumulation of soils from the exterior of equipment prior to transportation to the next range. USEPA's on-site representative accepted this method as adequate.

2.10 Berm Reconstruction

Upon review of the post-excavation soil sample and in-situ processing verification sample analytical results, Ogden directed Severson to commence reconstruction of the berms at Ranges B and C. Reconstruction was accomplished utilizing ex-situ processed soils stockpiled in the central processing area that had been analyzed to confirm that

TCLP leachable lead had been reduced to less than 5.0 mg/L. Photographs of the berm reconstruction activity are included in Appendix C.

The berms on Ranges B and C were reconstructed to the original contours based upon pre-excavation surveys conducted by Cape Surv. Cape Surv confirmed the reconstruction via post-reconstruction surveys. Reconstruction of the berms at Ranges B and C was completed eight (8) weeks ahead of the project schedule despite having incurred 15 days of weather related delays and three (3) days of UXO clearance support delays earlier in the project.

The MAARNG is responsible for reconstruction of the other small arms range berms. Reconstruction is already underway utilizing the ex-situ processed soil.

2.11 Equipment Decontamination

Prior to demobilization from the site, Severson's equipment was decontaminated. Decontamination was accomplished with a mixture of methods including dry cleaning (shovels, brooms), compressed air, and high pressure water washing. Prior to being removed from the site, each piece of equipment was inspected by the Site Safety Officer and a certificate of decontamination completed including the name and model number of the equipment, date of decontamination, and a discussion of the procedures utilized. The certificates of decontamination were attached to the daily production reports.

Equipment decontamination was completed on June 24, 1998, approximately four (4) weeks ahead of schedule.

2.12 Demobilization and Site Restoration

Upon completion of the field activities, field equipment and personnel were demobilized from the project site. During demobilization, the approximately 35,000 square foot area where the ex-situ processing equipment and pre-processing soil stockpile was formerly located was sprayed with MAECTITE.

The last office trailer was demobilized on June 26, 1998. The final piece of equipment was demobilized on or about July 2, 1998. Final demobilization was completed five (5) weeks ahead of the project schedule despite having incurred 18 days of delays. Photographs of the central processing and support area after completion of demobilization activities are included in Appendix C.

Orange construction fencing erected during the mobilization portion of the project was left in-place near the material stockpiles. The disposition of the stockpiles left on-site after completion of demobilization activities is noted below.

Ex-Situ Processed Soil

Processed soil was left in the post-processing stockpile for use by the MAARNG in reconstruction of the small arms ranges.

Material Retained on the No. 4 Screen

The material retained on the No. 4 screen for recycling (estimated 1,200 cubic yards mixture of gravel, bullets, bullet fragments, and bullet jacketing) will be managed by the MAARNG. Efforts are reportedly underway to contract for the secondary separation of the material retained on the No. 4 screen. Ultimately, the intent is to ship the bullets, fragments and jacketing off-site for recycling and return the stone to beneficial use on-site.

Oversize Rocks

The remaining oversize rocks (estimated 750 cubic yards) will be managed by MAARNG in conjunction with the management of the material retained on the No. 4 screen. The intent is to return the oversize rocks to beneficial use on-site.

3.0 ANALYTICAL DATA PRESENTATION

3.1 Chemical Analyses

Analytical data was generated by Severson's on-site mobile laboratory and Waste Stream Technologies, Inc. in Buffalo, New York. Soil samples were collected and analyzed for the following general purposes:

- Pre-excavation berm characterization
- Post-excavation confirmation
- Post ex-situ MAECTITE processing confirmation
- Post in-situ MAECTITE processing confirmation

The following data summary tables present TCLP leachable lead, total lead and other total metals (copper, iron, nickel, and antimony) for pre- and post-excavation samples collected from the small arms range berms (Tables 3-1 through 3-30); leachable and total lead for the ex-situ process confirmation samples (Table 3-31); and leachable and total lead for the in-situ process confirmation samples (Table 3-32). The complete laboratory data reports are contained in Appendix D (Volume II).

The data illustrates the limited extent of TCLP leachable lead in the berm and near berm soils based upon the pre-excavation sample collection and analysis activities conducted at MMR. Typically, the highest TCLP leachable lead concentrations were detected within the first two (2) feet of soil on the berm face. In limited cases (i.e., Range H), higher concentrations of TCLP leachable lead were observed with depth at the post-excavation sample locations (mid-point between pre-excavation sample locations). These higher concentrations with depth may be attributed to past resurfacing of the berms. Vertical migration of TCLP leachable lead (in concentrations greater than 5.0 mg/L) from the berms was typically limited to less than 10 feet.

The reported detection of other total metals (copper, iron, nickel, and antimony) in the berm soils was not surprising given the chemical composition of small arms rounds jacketing (the part of the bullet surrounding the lead core). The Administrative Order directing this project required removal of metallic lead and chemical fixation of leachable lead as the governing performance criteria. The collection of data on other total metals was performed to satisfy USEPA's requirement added as a condition of approval of the project Work Plan.

The point to take away is that in the 16 bermed small arms ranges addressed during this project, the soils containing TCLP leachable lead concentrations greater than 5.0 mg/L were removed during the excavation and/or in-situ process activities. This is supported by the post-excavation and post in-situ processing confirmation analytical data that indicates the soils remaining at the berms contains less than 5.0 mg/L of TCLP leachable lead.

The soils excavated and run through the ex-situ process (screening and chemical fixation) due to the presence of recoverable metallic lead were to be processed to the point of containing less than 5.0 mg/L of TCLP leachable lead. The process met and in the vast majority of the post ex-situ process confirmation samples exceed the performance criteria by an order of magnitude. The success of the ex-situ process is demonstrated by the TCLP leachable lead concentrations in the post ex-situ process confirmation analytical data. The majority of the analytical results indicated that TCLP leachable lead had been reduced to less than 0.5 mg/L.

Guide to Understanding Sample Identification

To aid the reader in understanding the sample identification scheme implemented for the project, the following guide is provided. Figure 3-1 depicts a typical small arms range layout in profile.

Pre-Excavation Samples

Range : Berm or Toe (Primary or Secondary) : Location : Depth

Example: A:B1:L75:02

A	=	Range A
B1	=	Primary Berm (versus Secondary Berm indicated as B2)
L75	=	75 feet left of center
02	=	0 to 2 feet depth interval from face of berm

Example: A:T2:R75:46

A	=	Range A
T2	=	Secondary Toe (versus Primary Toe indicated as T1)
R75	=	75 feet right of center
46	=	4 to 6 feet depth interval from ground surface in toe area

Post-Excavation Samples - Bermed Ranges

Range : Berm or Toe (Primary or Secondary) : Location / Location : Depth

Example: A:B1:L75/L50:24

A	=	Range A
B1	=	Primary Berm
L75/L50	=	Mid-point between 75 and 50 feet left of center
24	=	2 to 4 feet depth interval from face of berm

The second part of the document describes the various methods used to collect and analyze data. It includes a detailed discussion of the different types of data that can be collected, such as financial data, operational data, and customer data. It also discusses the various techniques used to analyze this data, including statistical analysis, data mining, and machine learning.

TYPICAL SMALL ARMS RANGE LAYOUT





Post-Excavation Samples - Pop-up Target Ranges SE and SW

Range : Distance : Position : Depth

Example: SE:125M:B:24
SE = Range SE
125M = 125 meter target line (from firing positions)
B = Position B
24 = 2 to 4 feet depth interval from face of pop-up protector

Ex-Situ Process Confirmation Samples

Treated Stockpile : Number

Example: TSP-07
TSP = Treated Stockpile
08 = Seventh 500 ton "lot" of processed soil

In-Situ Process Confirmation Samples

Treated Soil : Range : Number

Example: TS-A-01
TS = Treated Soil
A = Range A
01 = First confirmation sample from Range A

3.2 Air Monitoring

A portion of the air monitoring samples collected by the site safety officer during performance of the project were analyzed at an off-site laboratory as a quantification of the lead contained in the dust collected on the sample media. The samples sent off-site for analysis were shipped to Philip Analytical Services in Reading, Pennsylvania for analysis by either NIOSH Method No. 7105 or ID 121. The intent of having a portion of the collected air samples analyzed off-site was to determine the quantity of total lead in the air sample collected and to provide data for comparison of the on-site air monitoring samples (i.e., determine the percentage of lead in the dust collected in a sample).

The off-site laboratory analytical results are presented in Table 3-33. The on-site air monitoring data and off-site analytical reports are contained in Appendix B.

As briefly discussed in Sections 2.6, 2.8 and 2.9, down wind airborne particulate concentrations were typically no higher than up wind (or background) results. In the isolated cases where down wind results were higher than up wind (or background), the results were still less than an order of magnitude higher than background. The project Health and Safety Plan specified upgrading of worker respiratory protection if respirable dust exceeded a concentration of 500 micrograms per cubic meter (also expressed as 0.5 mg/m³) or if lead in airborne dust exceeded 50 micrograms per cubic meter (also expressed as 0.05 mg/m³).

Reviewing the summary of air monitoring sample analytical results (Table 3-33) analyzed for total lead the reader can see that at no time did the air borne concentrations of total lead approach the point (greater than 0.05 mg/m³) of requiring worker protection in the area of active handling of the soils. Further, the on-site air monitoring results included in Appendix B indicate that the total air borne dust concentrations also did not approach the point (greater than 0.5 mg/m³) of requiring worker protection in the areas of active handling of the soils. At no time during site activities did the work generate enough dust to require an upgrade of respiratory protection to air purifying respirators. All operations were conducted without the need to provide worker respiratory protection.

Table 3-1

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range A - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
A:B1:L75:02	< 0.50	< 50.0	3.5	1940	1.4	< 1.0
A:B1:L75:24	2.130	224.9				
A:B1:L75:46	< 0.50	< 50.0				
A:B1:L50:02	3.738	95.6				
A:B1:L50:24	1.594	69.8				
A:B1:L50:46	< 0.50	< 50.0				
A:B1:L25:02	14.727	199.0				
A:B1:L25:24	22.097	457.5				
A:B1:L25:46	12.181	56.8				
A:B1:L25:68	< 0.50	< 50.0				
A:B1:CP:02	70.09	380.0				
A:B1:CP:24	8.027	302.4				
A:B1:CP:46	84.29	302.4				
A:B1:CP:68	2.087	68.9				
A:B1:R25:02	29.34	767.8				
A:B1:R25:24	6.016	199.0				
A:B1:R25:46	0.924	< 50.0	22.3	1220	< 1.0	< 1.0
A:B1:R50:02	< 0.50	< 50.0				
A:B1:R50:24	< 0.50	< 50.0				
A:B1:R50:46	< 0.50	54.3				
A:B1:R75:02	< 0.50	< 50.0				
A:B1:R75:24	< 0.50	< 50.0				
A:B1:R75:46	< 0.50	< 50.0				

Table 3-1 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range A - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
A:T1:L75:02	< 0.50	< 50.0				
A:T1:L75:24	< 0.50	< 50.0	1.1	4420	1.9	< 1.0
A:T1:L75:46	< 0.50	< 50.0				
A:T1:L50:02	< 0.50	< 50.0				
A:T1:L50:24	< 0.50	< 50.0				
A:T1:L50:46	< 0.50	< 50.0				
A:T1:L25:02	0.545	< 50.0				
A:T1:L25:24	< 0.50	< 50.0				
A:T1:L25:46	< 0.50	< 50.0				
A:T1:CP:02	2.894	229.3	107	2590	1.2	< 1.0
A:T1:CP:24	< 0.50	< 50.0				
A:T1:CP:46	< 0.50	< 50.0				
A:T1:R25:02	2.223	136.0				
A:T1:R25:24	< 0.50	< 50.0				
A:T1:R25:46	< 0.50	< 50.0				
A:T1:R50:02	< 0.50	89.3				
A:T1:R50:24	< 0.50	< 50.0				
A:T1:R50:46	< 0.50	< 50.0				
A:T1:R75:02	1.552	< 50.0				
A:T1:R75:24	< 0.50	< 50.0				
A:T1:R75:46	< 0.50	< 50.0				

Table 3-1 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range A - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
A:B2:L75:02	< 0.50	< 50.0				
A:B2:L75:24	< 0.50	< 50.0				
A:B2:L75:46	< 0.50	< 50.0				
A:B2:L50:02	< 0.50	< 50.0				
A:B2:L50:24	< 0.50	< 50.0	1.7	7750	3.2	< 1.0
A:B2:L50:46	< 0.50	< 50.0				
A:B2:L25:02	< 0.50	< 50.0				
A:B2:L25:24	< 0.50	< 50.0				
A:B2:L25:46	1.695	< 50.0				
A:B2:CP:02	< 0.50	< 50.0				
A:B2:CP:24	0.937	203.6				
A:B2:CP:46	< 0.50	< 50.0				
A:B2:R25:02	< 0.50	< 50.0	7.8	5100	2	< 1.0
A:B2:R25:24	< 0.50	< 50.0				
A:B2:R25:46	< 0.50	< 50.0				
A:B2:R50:02	< 0.50	< 50.0				
A:B2:R50:24	< 0.50	< 50.0				
A:B2:R50:46	< 0.50	< 50.0				
A:B2:R75:02	< 0.50	< 50.0				
A:B2:R75:24	< 0.50	< 50.0				
A:B2:R75:46	< 0.50	< 50.0				



Table 3-1 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range A - Toe of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
A:T2:L75:02	0.782	< 0.50				
A:T2:L75:24	< 0.50	< 0.50				
A:T2:L75:46	< 0.50	< 0.50				
A:T2:L50:02	5.190	< 0.50				
A:T2:L50:24	< 0.50	< 0.50				
A:T2:L50:46	< 0.50	< 0.50	2.7	5330	3.1	< 1.0
A:T2:L25:02	< 0.50	< 0.50				
A:T2:L25:24	< 0.50	< 0.50				
A:T2:L25:46	< 0.50	< 0.50				
A:T2:CP:02	10.841	2119				
A:T2:CP:24	0.522	< 0.50				
A:T2:CP:46	0.522	56.8				
A:T2:R25:02	1.862	< 0.50				
A:T2:R25:24	< 0.50	< 0.50	< 1.0	2490	1.4	< 1.0
A:T2:R25:46	< 0.50	< 0.50				
A:T2:R50:02	< 0.50	< 0.50				
A:T2:R50:24	< 0.50	< 0.50				
A:T2:R50:46	< 0.50	< 0.50				
A:T2:R75:02	5.748	< 50.0				
A:T2:R75:24	< 0.50	< 50.0				
A:T2:R75:46	< 0.50	< 0.50				

Table 3-2

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range A - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
A:B1:L75:02	< 0.50	< 50.0				
A:B1:L75/L50:24	< 0.50	< 50.0				
A:B1:L75/L50:46	1.730	134.9				
A:B1:L75/L50:68	< 0.50	< 50.0				
A:B1:L75/L50:810	< 0.50	< 50.0				
A:B1:L75/L50:1012	0.570	< 50.0				
A:B1:L50/L25:24	< 0.50	< 50.0				
A:B1:L50/L25:68	< 0.50	< 50.0				
A:B1:L50/L25:1012	< 0.50	< 50.0				
A:B1:L25/CP:68	< 0.50	56.3				
A:B1:L25/CP:1012	< 0.50	< 50.0				
A:B1:CP/R25:68	< 0.50	< 50.0				
A:B1:CP/R25:1012	0.570	< 50.0				
A:B1:R25/R50:24	< 0.50	< 50.0				
A:B1:R25/R50:46	1.859	168.6				
A:B1:R25/R50:68	0.954	90.0				
A:B1:R25/R50:1012	1.194	82.0				
A:B1:R50/R75:24	< 0.50	67.6				
A:B1:R50/R75:1012	< 0.50	< 50.0				
A:B1:R75/R100:24	< 0.50	< 50.0				
A:B1:R75/R100:1012	< 0.50	< 50.0				
A:B1:R100:24	< 0.50	< 50.0				

Table 3-2 (Con't.)

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range A - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
A:B2:L100:24	< 0.50	< 50.0				
A:B2:L75:24	< 0.50	< 50.0				
A:B2:L75/L50:24	< 0.50	< 50.0				
A:B2:L50/L25:24	< 0.50	< 50.0				
A:B2:L50/L25:46	< 0.50	82.0				
A:B2:L50/L25:68	< 0.50	94.5				
A:B2:L25/CP:24	< 0.50	< 50.0	6.57	4680	1.93	< 1.00
A:B2:L25/CP:46	< 0.50	< 50.0				
A:B2:L25/CP:68	< 0.50	< 50.0				
A:B2:CP/R25:24	< 0.50	< 50.0				
A:B2:CP/R25:46	0.695	94.5				
A:B2:R25/R50:24	2.488	< 50.0				
A:B2:R25/R50:46	< 0.50	< 50.0				
A:B2:R50/R75:24	< 0.50	< 50.0				
A:B2:R50/R75:46	< 0.50	< 50.0				
A:B2:R75:24	< 0.50	< 50.0	4.09	5050	2.17	< 1.00
A:B2:R75/R100:46	< 0.50	57.0	9.7	6070	3.3	< 1.0

Table 3-3

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range B - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:B1:L300:02	< 0.50	< 50.0				
B:B1:L300:24	< 0.50	< 50.0				
B:B1:L300:46	1.727	99.2				
B:B1:L275:02	< 0.50	< 50.0				
B:B1:L275:24	< 0.50	< 50.0	< 1.0	1120	< 1.0	< 1.0
B:B1:L275:46	< 0.50	< 50.0				
B:B1:L250:02	< 0.50	< 50.0				
B:B1:L250:24	< 0.50	< 50.0				
B:B1:L250:46	< 0.50	< 50.0				
B:B1:L225:02	2.767	< 50.0				
B:B1:L225:24	< 0.50	< 50.0				
B:B1:L225:46	< 0.50	< 50.0				
B:B1:L200:02	< 0.50	< 50.0	1.9	1090	< 1.0	< 1.0
B:B1:L200:24	17.853	162.8				
B:B1:L200:46	< 0.50	< 50.0				
B:B1:L175:02	< 0.50	< 50.0				
B:B1:L175:24	237.7	1295.7				
B:B1:L175:46	< 0.50	< 50.0				
B:B1:L150:02	< 0.50	< 50.0				
B:B1:L150:24	22.47	< 50.0				
B:B1:L150:46	0.816	< 50.0				
B:B1:L125:02	12.352	57.1				
B:B1:L125:24	10.952	68.9				
B:B1:L125:46	3.020	57.1				
B:B1:L100:02	< 0.50	< 50.0				
B:B1:L100:24	< 0.50	80.7				
B:B1:L100:46	< 0.50	< 50.0	1.6	3150	1.6	< 1.0
B:B1:L75:02	11.574	221.9				
B:B1:L75:24	81.53	975.2				
B:B1:L75:46	5.197	245.4				
B:B1:L75:68	< 0.50	< 50.0	2.54	2847	1.25	2.13
B:B1:L50:02	0.843	116.0				
B:B1:L50:24	4.109	< 50.0				
B:B1:L50:46	15.307	163.1				
B:B1:L50:68	< 0.50	< 50.0				
B:B1:L25:02	Note 1					
B:B1:L25:24	Note 1					
B:B1:L25:46	Note 1					

Table 3-3 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range B - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:B1:CP:02	107.97	1375.3				
B:B1:CP:24	3.642	68.9	7.6	1260	< 1.0	1.1
B:B1:CP:46	0.687	57.1				
B:B1:R25:02	Note 1					
B:B1:R25:24	Note 1					
B:B1:R25:46	Note 1					
B:B1:R50:02	7.997	< 50.0				
B:B1:R50:24	3.020	< 50.0				
B:B1:R50:46	20.439	1069.3				
B:B1:R50:68	0.774	< 50.0				
B:B1:R75:02	< 0.50	< 50.0				
B:B1:R75:24	14.685	104.2				
B:B1:R75:46	11.419	339.6				
B:B1:R75:68	36.81	1004.3				
B:B1:R75:810	17.310	59.2				
B:B1:R75:1012	< 0.50	< 50.0	< 1.00	1492	< 1.00	< 1.00
B:B1:R100:02	45.75	163.1	17.3	3160	2.8	< 1.0
B:B1:R100:24	6.131	104.2				
B:B1:R100:46	1.154	< 50.0				
B:B1:R125:02	9.708	116.0				
B:B1:R125:24	3.953	304.3				
B:B1:R125:46	3.331	< 50.0				
B:B1:R150:02	6.908	< 50.0				
B:B1:R150:24	8.308	92.4				
B:B1:R150:46	87.75	1869.7				
B:B1:R150:68	41.65	516.7				
B:B1:R150:810	4.687	164.5				
B:B1:R175:02	14.063	198.4				
B:B1:R175:24	< 0.50	< 50.0				
B:B1:R175:46	115.74	1316.5				
B:B1:R175:68	5.861	< 50.0	3.94	1917	< 1.00	2.38
B:B1:R175:810	< 0.50	< 50.0				
B:B1:R200:02	4.063	< 50.0				
B:B1:R200:24	< 0.50	< 50.0				
B:B1:R200:46	6.442	127.7	2.7	1460	< 1.0	< 1.0
B:B1:R200:68	< 0.50	< 50.0				
B:B1:R225:02	1.767	< 50.0				
B:B1:R225:24	< 0.50	< 50.0				
B:B1:R225:46	4.701	66.3				

Table 3-3 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range B - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:B1:R250:02	135.04	11,546				
B:B1:R250:24	1.129	66.3				
B:B1:R250:46	53.39	1521.9				
B:B1:R250:68	44.08	81.0				
B:B1:R250:810	0.769	< 50.0				
B:B1:R275:02	1.894	< 50.0				
B:B1:R275:24	6.615	66.3	2.5	1600	< 1.0	< 1.0
B:B1:R275:46	6.487	53.6				
B:B1:R275:68	6.467	60.3				
B:B1:R275:810	2.075	< 50.0				
B:B1:R300:02	8.656	1015.4				
B:B1:R300:24	14.142	926.8				
B:B1:R300:46	22.77	6990				
B:B1:R300:68	< 0.50	< 50.0				
B:B1:R325:02	< 0.50	< 50.0				
B:B1:R325:24	2.277	< 50.0				
B:B1:R325:46	< 0.50	< 50.0				

Note 1: See Severson's letter dated April 27, 1998. Data reported in this table for sample identification assigned in the field. Actual location not reflected by sample identification number. Severson's letter provides cross reference of identified location to actual location.

Table 3-3 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range B - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:T1:L300:02	0.746	< 50.0	3.2	2158	1.2	< 1.0
B:T1:L300:24	< 0.50	< 50.0				
B:T1:L300:46	< 0.50	< 50.0				
B:T1:L275:02	< 0.50	< 50.0				
B:T1:L275:24	< 0.50	< 50.0				
B:T1:L275:46	< 0.50	< 50.0				
B:T1:L250:02	1.129	154.9				
B:T1:L250:24	< 0.50	< 50.0				
B:T1:L250:46	< 0.50	< 50.0				
B:T1:L225:02	12.240	895.5				
B:T1:L225:24	1.251	< 50.0				
B:T1:L225:46	< 0.50	< 50.0				
B:T1:L200:02	24.43	819.5				
B:T1:L200:24	1.251	< 50.0				
B:T1:L200:46	< 0.50	< 50.0	1.4	3150	1.4	< 1.0
B:T1:L175:02	35.02	1947.0				
B:T1:L175:24	1.251	< 50.0				
B:T1:L175:46	< 0.50	< 50.0				
B:T1:L150:02	1.119	< 50.0				
B:T1:L150:24	28.40	502.8				
B:T1:L150:46	0.854	< 50.0				
B:T1:L125:02	156.82	3127				
B:T1:L125:24	167.41	2874	54.4	2120	< 1.0	1.9
B:T1:L125:46	53.55	300.1				
B:T1:L125:68	38.02	734.6				
B:T1:L125:810	45.78	1669.8				
B:T1:L125:1012	5.199	54.7				
B:T1:L125:1214	< 0.50	< 50.0				
B:T1:L100:02	2.575	135.4				
B:T1:L100:24	0.854	< 50.0				
B:T1:L100:46	< 0.50	< 50.0				
B:T1:L75:02	21.78	439.4				
B:T1:L75:24	20.45	718.1				
B:T1:L75:46	9.459	< 50.0				
B:T1:L75:68	18.217	205.5				
B:T1:L75:810	< 0.50	< 50.0				
B:T1:L50:02	36.34	553.4	53.8	1930	< 1.0	3.2
B:T1:L50:24	48.28	1617.6				
B:T1:L50:46	1.516	< 50.0				

Table 3-3 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range B - Toe of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:T1:L25:02	Note 1					
B:T1:L25:24	Note 1					
B:T1:L25:46	Note 1					
B:T1:CP:02	82.68	1921.6				
B:T1:CP:24	35.02	490.1				
B:T1:CP:46	11.048	933.5				
B:T1:CP:68	70.73	4648				
B:T1:CP:810	4.687	90.8				
B:T1:R25:02	654.7	10,222				
B:T1:R25:24	297.2	5,028				
B:T1:R25:46	33.69	794.1				
B:T1:R25:68	35.60	350.7				
B:T1:R25:810	6.102	69.7				
B:T1:R25:1012	3.731	< 50.0				
B:T1:R50:02	734.1	8321				
B:T1:R50:24	33.69	794.1				
B:T1:R50:46	39.00	629.5				
B:T1:R50:68	57.40	1087.3				
B:T1:R50:810	0.66	< 50.0				
B:T1:R75:02	61.5	1830.0				
B:T1:R75:24	< 0.50	< 50.0				
B:T1:R75:46	< 0.50	< 50.0	< 1.0	1470	< 1.0	< 1.0
B:T1:R100:02	< 0.50	< 50.0				
B:T1:R100:24	< 0.50	< 50.0				
B:T1:R100:46	< 0.50	< 50.0				
B:T1:R125:02	27.5	1181.3				
B:T1:R125:24	1.465	< 50.0				
B:T1:R125:46	< 0.50	< 50.0				
B:T1:R150:02	20.164	808.3	4.7	1610	1.1	< 1.0
B:T1:R150:24	0.615	< 50.0				
B:T1:R150:46	< 0.50	< 50.0				
B:T1:R175:02	26.55	1489.4				
B:T1:R175:24	2.825	< 50.0				
B:T1:R175:46	< 0.50	< 50.0				
B:T1:R200:02	3.675	127.3				
B:T1:R200:24	< 0.50	< 50.0				
B:T1:R200:46	< 0.50	< 50.0				

Table 3-3 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range B - Toe of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:T1:R225:02	27.5	2732	38.6	5010	3	< 1.0
B:T1:R225:24	< 0.50	< 50.0				
B:T1:R225:46	< 0.50	< 50.0				
B:T1:R250:02	1.125	< 50.0				
B:T1:R250:24	< 0.50	< 50.0				
B:T1:R250:46	< 0.50	< 50.0				
B:T1:R275:02	< 0.50	< 50.0				
B:T1:R275:24	4.185	< 50.0				
B:T1:R275:46	< 0.50	< 50.0				
B:T1:R300:02	1.975	< 50.0				
B:T1:R300:24	< 0.50	< 50.0				
B:T1:R300:46	< 0.50	< 50.0				

Note 1: See Severson's letter dated April 27, 1998. Data reported in this table for sample identification assigned in the field. Actual location not reflected by sample identification number. Severson's letter provides cross reference of identified location to actual location.

Table 3-4

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range B - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:B1:L300:24	< 0.50	< 50.0	< 1.0	1550	< 1.0	< 1.0
B:B1:L300/L275:24	0.535	< 50.0				
B:B1:L275/L250:24	< 0.50	< 50.0				
B:B1:L250/L225:24	< 0.50	< 50.0				
B:B1:L225/L200:24	< 0.50	< 50.0				
B:B1:L225/L200:46	< 0.50	< 50.0				
B:B1:L200/L175:46	< 0.50	< 50.0				
B:B1:L175/L150:46	< 0.50	< 50.0				
B:B1:L150/L125:46	< 0.50	< 50.0				
B:B1:L125/L100:24	< 0.50	< 50.0				
B:B1:L125/L100:46	< 0.50	< 50.0				
B:B1:L100/L75:24	1.408	< 50.0				
B:B1:L100/L75:46	< 0.50	< 50.0				
B:B1:L100/L75:68	< 0.50	< 50.0				
B:B1:L75/50:68	< 0.50	< 50.0				
B:B1:L50/L25:46	< 0.50	< 50.0				
B:B1:L50/L25:68	< 0.50	< 50.0				
B:B1:L25/R25:46	9.131	< 50.0				
B:B1:L25/R25:810	< 0.50	< 50.0				
B:B1:R25/R50:68	2.826	< 50.0				
B:B1:R25/R50:810	< 0.50	< 50.0				
B:B1:R25/R50:1012	< 0.50	< 50.0				
B:B1:R50/R75:46	< 0.50	< 50.0				
B:B1:R50/R75:68	< 0.50	< 50.0				
B:B1:R50/R75:810	< 0.50	< 50.0				

Table 3-4 (Con't.)

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range B - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B:B1:R50/R75:1012	< 0.50	< 50.0				
B:B1:R75/R100:24	8.320	130.6				
B:B1:R75/R100:46	1.355	< 50.0				
B:B1:R100/R125:24	< 0.50	< 50.0				
B:B1:R100/R125:46	< 0.50	< 50.0				
B:B1:R100/R125:68	< 0.50	< 50.0	1.2	2495	1.5	< 1.0
B:B1:R100/R125:810	< 0.50	< 50.0	1.2	3292	1.7	< 1.0
B:B1:R125/R150:810	< 0.50	< 50.0				
B:B1:R150/R175:68	1.460	< 50.0				
B:B1:R150/R175:810	< 0.50	< 50.0				
B:B1:R175/R200:24	< 0.50	< 50.0				
B:B1:R175/R200:46	< 0.50	< 50.0				
B:B1:R175/R200:68	< 0.50	< 50.0				
B:B1:R200/R225:24	1.509	< 50.0				
B:B1:R200/R225:46	< 0.50	< 50.0				
B:B1:R200/R225:68	< 0.50	< 50.0				
B:B1:R200/R225:810	< 0.50	< 50.0				
B:B1:R225/R250:810	< 0.50	< 50.0				
B:B1:R250/R275:68	< 0.50	< 50.0				
B:B1:R250/R275:810	< 0.50	< 50.0	1.3	4082	2.1	< 1.0
B:B1:R275/R300:24	< 0.50	< 50.0				
B:B1:R275/R300:46	< 0.50	< 50.0	1.4	4275	2.1	< 1.0
B:B1:R275/R300:68	< 0.50	< 50.0				
B:B1:R300:24	< 0.50	< 50.0	1.7	2250	1.7	< 1.0

Table 3-5

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range C - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:B1:L150:02	< 0.50	< 50.0				
C:B1:L150:24	< 0.50	< 50.0				
C:B1:L150:46	< 0.50	< 50.0	2.7	1050	< 1.0	2.1
C:B1:L125:02	< 0.50	< 50.0				
C:B1:L125:24	< 0.50	< 50.0				
C:B1:L125:46	< 0.50	< 50.0				
C:B1:L100:02	< 0.50	< 50.0				
C:B1:L100:24	< 0.50	< 50.0				
C:B1:L100:46	< 0.50	< 50.0				
C:B1:L75:02	< 0.50	< 50.0	2.9	1160	< 1.0	2.3
C:B1:L75:24	< 0.50	< 50.0				
C:B1:L75:46	< 0.50	51.1				
C:B1:L50:02	0.645	< 50.0				
C:B1:L50:24	< 0.50	< 50.0				
C:B1:L50:46	< 0.50	< 50.0				
C:B1:L25:02	< 0.50	< 50.0				
C:B1:L25:24	0.952	< 50.0				
C:B1:L25:46	< 0.50	< 50.0	2.6	1580	< 1.0	2.3
C:B1:CP:02	< 0.50	< 50.0	3.6	1240	< 1.0	2.5
C:B1:CP:24	< 0.50	< 50.0				
C:B1:CP:46	8.717	< 50.0	3.7	1520	< 1.0	2.3
C:B1:CP:68	< 0.50	< 50.0				
C:B1:CP:810	< 0.50	< 50.0				
C:B1:R25:02	6.083	93.5				
C:B1:R25:24	< 0.50	< 50.0				
C:B1:R25:46	< 0.50	< 50.0				
C:B1:R50:02	7.694	50.0				
C:B1:R50:24	5.493	< 50.0				
C:B1:R50:46	< 0.50	< 50.0	3.0	1560	< 1.0	2.4
C:B1:R75:02	< 0.50	< 50.0				
C:B1:R75:24	< 0.50	< 50.0				
C:B1:R75:46	< 0.50	< 50.0				
C:B1:R100:02	67.10	1339.7				
C:B1:R100:24	< 0.50	117.3				
C:B1:R100:46	< 0.50	< 50.0				
C:B1:R125:02	< 0.50	< 50.0				
C:B1:R125:24	19.770	1141.2				
C:B1:R125:46	1.173	< 50.0				

Table 3-5 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range C - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:B1:R150:02	< 0.50	< 50.0				
C:B1:R150:24	1.282	< 50.0				
C:B1:R150:46	15.900	304.2				
C:B1:R150:68	< 0.50	< 50.0				
C:B1:R150:810	< 0.50	< 50.0				

Table 3-5 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range C - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:T1:L150:02	< 0.50	< 50.0				
C:T1:L150:24	< 0.50	< 50.0				
C:T1:L150:46	< 0.50	< 50.0				
C:T1:L125:02	91.33	141.3				
C:T1:L125:24	< 0.50	< 50.0				
C:T1:L125:46	< 0.50	< 50.0				
C:T1:L100:02	2.902	142.6				
C:T1:L100:24	< 0.50	< 50.0	3.4	990	< 1.0	2.8
C:T1:L100:46	< 0.50	< 50.0				
C:T1:L75:02	< 0.50	< 50.0				
C:T1:L75:24	< 0.50	< 50.0				
C:T1:L75:46	< 0.50	< 50.0				
C:T1:L50:02	< 0.50	< 50.0				
C:T1:L50:24	< 0.50	< 50.0				
C:T1:L50:46	< 0.50	< 50.0				
C:T1:L25:02	0.850	< 50.0				
C:T1:L25:24	< 0.50	< 50.0				
C:T1:L25:46	< 0.50	< 50.0				
C:T1:CP:02	< 0.50	< 50.0				
C:T1:CP:24	< 0.50	< 50.0				
C:T1:CP:46	< 0.50	< 50.0				
C:T1:R25:02	< 0.50	< 50.0				
C:T1:R25:24	0.757	< 50.0				
C:T1:R25:46	< 0.50	< 50.0				
C:T1:R50:02	< 0.50	< 50.0				
C:T1:R50:24	< 0.50	< 50.0	3.1	1430	< 1.0	2.2
C:T1:R50:46	< 0.50	< 50.0				
C:T1:R75:02	< 0.50	< 50.0				
C:T1:R75:24	< 0.50	< 50.0				
C:T1:R75:46	< 0.50	< 50.0				
C:T1:R100:02	< 0.50	< 50.0				
C:T1:R100:24	1.695	< 50.0				
C:T1:R100:46	< 0.50	< 50.0				
C:T1:R125:02	< 0.50	< 50.0				
C:T1:R125:24	< 0.50	< 50.0				
C:T1:R125:46	< 0.50	< 50.0				
C:T1:R150:02	< 0.50	< 50.0	3.0	1520	< 1.0	2.3
C:T1:R150:24	< 0.50	< 50.0				
C:T1:R150:46	< 0.50	< 50.0				

Table 3-5 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range C - Toe of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:T2:L150:02	Note 1					
C:T2:L150:24	Note 1					
C:T2:L150:46	Note 1					
C:T2:L125:02	Note 1					
C:T2:L125:24	Note 1					
C:T2:L125:46	Note 1					
C:T2:L100:02	Note 1					
C:T2:L100:24	Note 1					
C:T2:L100:46	Note 1					
C:T2:L75:02	Note 1					
C:T2:L75:24	Note 1					
C:T2:L75:46	Note 1					
C:T2:L50:02	Note 1					
C:T2:L50:24	Note 1					
C:T2:L50:46	Note 1					
C:T2:L25:02	Note 1					
C:T2:L25:24	Note 1					
C:T2:L25:46	Note 1					
C:T2:CP:02	< 0.50	< 50.0				
C:T2:CP:24	< 0.50	< 50.0				
C:T2:CP:46	< 0.50	< 50.0				
C:T2:R25:02	1.545	75.0				
C:T2:R25:24	< 0.50	< 50.0	4.1	1420	< 1.0	2.4
C:T2:R25:46	11.564	< 50.0	5.8	1850	< 1.0	2.4
C:T2:R25:68	< 0.50	< 50.0				
C:T2:R25:810	< 0.50	< 50.0				
C:T2:R50:02	< 0.50	< 50.0				
C:T2:R50:24	< 0.50	< 50.0				
C:T2:R50:46	< 0.50	< 50.0				
C:T2:R75:02	1.465	< 50.0				
C:T2:R75:24	< 0.50	< 50.0				
C:T2:R75:46	< 0.50	< 50.0				
C:T2:R100:02	1.390	< 50.0				
C:T2:R100:24	1.175	< 50.0				
C:T2:R100:46	< 0.50	< 50.0				
C:T2:R125:02	< 0.50	< 50.0				
C:T2:R125:24	< 0.50	< 50.0	3.0	1240	< 1.0	2.2
C:T2:R125:46	< 0.50	< 50.0				

Table 3-5 (Con't.)**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples****Range C - Toe of Secondary Berm (Con't.)**

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:T2:R150:02	< 0.50	< 50.0				
C:T2:R150:24	< 0.50	< 50.0				
C:T2:R150:46	< 0.50	< 50.0	3.4	2250	0.9	2.0

Note 1: No "Left" portion existed for the Secondary Berm.

Table 3-6

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range C - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:B1:L150:24	< 0.50	< 50.0				
C:B1:L150/L125:24	< 0.50	< 50.0				
C:B1:L125/L100:24	< 0.50	< 50.0	< 1.00	1928	< 1.00	< 1.00
C:B1:L100/L75:24	< 0.50	< 50.0				
C:B1:L75/L50:24	2.475	160.0				
C:B1:L50/L25:24	< 0.50	< 50.0				
C:B1:L25/CP:24	< 0.50	< 50.0				
C:B1:L25/CP:46	< 0.50	< 50.0				
C:B1:L25/CP:68	< 0.50	< 50.0				
C:B1:CP:68	0.126	< 4.1	1.41	1660	< 1.00	< 1.00
C:B1:CP/R25:24	< 0.50	< 50.0				
C:B1:CP/R25:46	< 0.50	< 50.0				
C:B1:CP/R25:68	< 0.50	< 50.0				
C:B1:R25/R50:24	< 0.50	< 50.0				
C:B1:R25/R50:46	< 0.50	< 50.0				
C:B1:R50/R75:24	2.027	< 50.0				
C:B1:R50/R75:46	< 0.50	< 50.0				
C:B1:R75/R100:24	< 0.50	< 50.0				
C:B1:R100/R125:24	< 0.50	< 50.0				
C:B1:R100/R125:46	< 0.50	< 50.0				
C:B1:R125/R150:46	< 0.50	< 50.0				
C:B1:R125/R150:68	< 0.50	< 50.0				

Table 3-6 (Con't.)

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range C - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C:B2:CP:24	< 0.50	< 50.0				
C:B2:CP/R25:24	< 0.50	< 50.0				
C:B2:R25/R50:24	< 0.50	< 50.0				
C:B2:R50/R75:24	< 0.50	< 50.0	< 1.00	3799	1.05	< 1.00
C:B2:R75/R100:24	< 0.50	< 50.0				
C:B2:R100/R125:24	< 0.50	< 50.0				
C:B2:R125/R150:24	< 0.50	< 50.0				
C:B2:R150:24	< 0.50	< 50.0				

Table 3-7

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range D - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
D:B1:L50:02	250.30	2510				
D:B1:L50:24	0.713	51.5				
D:B1:L50:46	< 0.50	< 50.0				
D:B1:L25:02	111.98	4754				
D:B1:L25:24	5.316	< 50.0				
D:B1:L25:46	< 0.50	< 50.0				
D:B1:R25:02	186.4	5003	191.0	3320	1.5	6.3
D:B1:R25:24	1.864	< 50.0				
D:B1:R25:46	< 0.50	201.1	< 1.0	1350	< 1.0	< 1.0
D:B1:R50:02	250.3	3258				
D:B1:R50:24	3.143	51.5				
D:B1:R50:46	< 0.50	< 50.0				

Range D - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
D:T1:L50:02	7.392	88.9				
D:T1:L50:24	0.585	< 50.0				
D:T1:L50:46	< 0.50	< 50.0				
D:T1:L25:02	8.796	176.2				
D:T1:L25:24	0.713	< 50.0				
D:T1:L25:46	< 0.50	< 50.0				
D:T1:R25:02	11.070	388.1				
D:T1:R25:24	< 0.50	< 50.0				
D:T1:R25:46	< 0.50	< 50.0				
D:T1:R50:02	9.400	735.6				
D:T1:R50:24	0.946	61				
D:T1:R50:46	< 0.50	< 50.0				

Table 3-8

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range D - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
D:B1:L50/L25:46	< 0.50	< 50.0				
D:B1:L25:24	< 0.50	< 50.0	1.87	2587	1.53	< 1.00
D:B1:L25/R25:24	1.387	< 50.0				
D:B1:L25/R25:46	< 0.50	< 50.0				
D:B1:R25:24	2.071	81.6				

Table 3-9

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range E - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:B1:L175:02H	Note 1					
E:B1:L175:02	< 0.50	104.8				
E:B1:L175:24H	Note 1					
E:B1:L175:24	< 0.50	< 50.0				
E:B1:L175:46H	Note 1					
E:B1:L175:46	< 0.50	< 50.0				
E:B1:L150:02H	Note 1					
E:B1:L150:02	< 0.50	< 50.0				
E:B1:L150:24H	Note 1					
E:B1:L150:24	< 0.50	< 50.0				
E:B1:L150:46H	Note 1					
E:B1:L150:46	< 0.50	< 50.0				
E:B1:L125:02H	Note 1					
E:B1:L125:02	0.66	69.7				
E:B1:L125:24H	Note 1					
E:B1:L125:24	< 0.50	< 50.0				
E:B1:L125:46H	Note 1					
E:B1:L125:46	< 0.50	< 50.0	< 1.0	1030	< 1.0	< 1.0
E:B1:L100:02H	< 0.50	< 50.0				
E:B1:L100:02	< 0.50	< 50.0				
E:B1:L100:24H	< 0.50	< 50.0				
E:B1:L100:24	< 0.50	< 50.0				
E:B1:L100:46H	< 0.50	< 50.0	< 1.0	1760	< 1.0	< 1.0
E:B1:L100:46	< 0.50	< 50.0				
E:B1:L75:02H	< 0.50	< 50.0				
E:B1:L75:02	0.66	< 50.0				
E:B1:L75:24H	< 0.50	< 50.0				
E:B1:L75:24	< 0.50	< 50.0				
E:B1:L75:46H	< 0.50	< 50.0				
E:B1:L75:46	< 0.50	< 50.0				
E:B1:L50:02H	< 0.50	< 50.0				
E:B1:L50:02	< 0.50	< 50.0				
E:B1:L50:24H	< 0.50	< 50.0				
E:B1:L50:24	< 0.50	< 50.0	< 1.0	1940	< 1.0	< 1.0
E:B1:L50:46H	< 0.50	< 50.0				
E:B1:L50:46	< 0.50	< 50.0				
E:B1:L25:02H	< 0.50	< 50.0				
E:B1:L25:02	< 0.50	< 50.0				
E:B1:L25:24H	< 0.50	< 50.0	1.4	2790	1.7	< 1.0
E:B1:L25:24	< 0.50	< 50.0				

Table 3-9 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range E - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:B1:L25:46H	< 0.50	< 50.0				
E:B1:L25:46	< 0.50	< 50.0				
E:B1:CP:02H	< 0.50	< 50.0				
E:B1:CP:02	6.210	290.8				
E:B1:CP:24H	< 0.50	< 50.0				
E:B1:CP:24	< 0.50	< 50.0				
E:B1:CP:46H	< 0.50	< 50.0				
E:B1:CP:46	< 0.50	< 50.0				
E:B1:R25:02H	< 0.50	< 50.0				
E:B1:R25:02	< 0.50	< 50.0	10.4	3150	1.7	< 1.0
E:B1:R25:24H	< 0.50	< 50.0				
E:B1:R25:24	< 0.50	< 50.0				
E:B1:R25:46H	< 0.50	< 50.0				
E:B1:R25:46	< 0.50	< 50.0				
E:B1:R50:02H	< 0.50	< 50.0	1.2	2920	1.1	< 1.0
E:B1:R50:02	0.552	< 50.0				
E:B1:R50:24H	< 0.50	< 50.0				
E:B1:R50:24	< 0.50	< 50.0				
E:B1:R50:46H	0.891	< 50.0				
E:B1:R50:46	< 0.50	< 50.0				
E:B1:R75:02H	Note 1					
E:B1:R75:02	< 0.50	< 50.0				
E:B1:R75:24H	Note 1					
E:B1:R75:24	< 0.50	< 50.0				
E:B1:R75:46H	Note 1					
E:B1:R75:46	< 0.50	< 50.0				
E:B1:R100:02H	< 0.50	< 50.0				
E:B1:R100:02	< 0.50	< 50.0				
E:B1:R100:24H	< 0.50	< 50.0				
E:B1:R100:24	< 0.50	< 50.0				
E:B1:R100:46H	< 0.50	< 50.0				
E:B1:R100:46	< 0.50	< 50.0				
E:B1:R125:02H	Note 1					
E:B1:R125:02	< 0.50	< 50.0				
E:B1:R125:24H	Note 1					
E:B1:R125:24	< 0.50	< 50.0				
E:B1:R125:46H	Note 1					
E:B1:R125:46	< 0.50	< 50.0	< 1.0	1190	< 1.0	< 1.0
E:B1:R150:02H	Note 1					
E:B1:R150:02	< 0.50	< 50.0				

Table 3-9 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range E - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:B1:R150:24H	Note 1					
E:B1:R150:24	< 0.50	< 50.0				
E:B1:R150:46H	Note 1					
E:B1:R150:46	< 0.50	< 50.0				
E:B1:R175:02H	Note 1					
E:B1:R175:02	< 0.50	< 50.0				
E:B1:R175:24H	Note 1					
E:B1:R175:24	< 0.50	< 50.0				
E:B1:R175:46H	Note 1					
E:B1:R175:46	< 0.50	< 50.0				

Note 1: No "High" Portion of berm.

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Table 3-9 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range E - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:T1:L175:02	< 0.50	< 50.0				
E:T1:L175:24	< 0.50	< 50.0	2.9	3860	1.3	< 1.0
E:T1:L175:46	< 0.50	< 50.0				
E:T1:L150:02	< 0.50	< 50.0				
E:T1:L150:24	< 0.50	< 50.0				
E:T1:L150:46	< 0.50	< 50.0				
E:T1:L125:02	< 0.50	< 50.0				
E:T1:L125:24	< 0.50	< 50.0				
E:T1:L125:46	< 0.50	< 50.0				
E:T1:L100:02	< 0.50	< 50.0	2.6	1940	1.1	< 1.0
E:T1:L100:24	< 0.50	< 50.0				
E:T1:L100:46	< 0.50	< 50.0				
E:T1:L75:02	< 0.50	< 50.0				
E:T1:L75:24	< 0.50	< 50.0				
E:T1:L75:46	< 0.50	< 50.0				
E:T1:L50:02	< 0.50	< 50.0				
E:T1:L50:24	< 0.50	< 50.0				
E:T1:L50:46	< 0.50	< 50.0				
E:T1:L25:02	< 0.50	< 50.0				
E:T1:L25:24	< 0.50	< 50.0				
E:T1:L25:46	0.554	< 50.0				
E:T1:CP:02	< 0.50	< 50.0				
E:T1:CP:24	< 0.50	< 50.0				
E:T1:CP:46	< 0.50	< 50.0	< 1.0	802	< 1.0	< 1.0
E:T1:R25:02	< 0.50	< 50.0				
E:T1:R25:24	< 0.50	< 50.0				
E:T1:R25:46	< 0.50	< 50.0				
E:T1:R50:02	< 0.50	< 50.0				
E:T1:R50:24	< 0.50	< 50.0				
E:T1:R50:46	< 0.50	< 50.0				
E:T1:R75:02	< 0.50	< 50.0				
E:T1:R75:24	< 0.50	< 50.0	1.6	2230	< 1.0	< 1.0
E:T1:R75:46	< 0.50	< 50.0				
E:T1:R100:02	< 0.50	< 50.0				
E:T1:R100:24	< 0.50	< 50.0				
E:T1:R100:46	< 0.50	< 50.0				
E:T1:R125:02	< 0.50	< 50.0				
E:T1:R125:24	< 0.50	< 50.0				
E:T1:R125:46	< 0.50	< 50.0				

Table 3-9 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range E - Toe of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:T1:R150:02	< 0.50	< 50.0	< 1.0	1340	< 1.0	< 1.0
E:T1:R150:24	< 0.50	< 50.0				
E:T1:R150:46	< 0.50	< 50.0				
E:T1:R175:02	< 0.50	< 50.0				
E:T1:R175:24	< 0.50	< 50.0				
E:T1:R175:46	< 0.50	< 50.0				

Table 3-10

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range E - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:B1:L175:24L	< 0.50	< 50.0				
E:B1:L175/L150:24L	< 0.50	< 50.0				
E:B1:L150/L125:24L	< 0.50	< 50.0				
E:B1:L125/L100:24L	< 0.50	< 50.0				
E:B1:L100:24H	< 0.50	< 50.0				
E:B1:L100/L75:24H	< 0.50	< 50.0				
E:B1:L100/L75:24L	< 0.50	< 50.0				
E:B1:L75/L50:24H	< 0.50	< 50.0				
E:B1:L75/L50:24L	< 0.50	< 50.0				
E:B1:L50/L25:24H	< 0.50	< 50.0	< 1.00	2204	< 1.00	< 1.00
E:B1:L50/L25:24L	< 0.50	< 50.0				
E:B1:L25/CP:24H	< 0.50	< 50.0				
E:B1:L25/CP:24L	< 0.50	< 50.0				
E:B1:CP/R25:24H	< 0.50	< 50.0				
E:B1:CP/R25:24L	< 0.50	< 50.0				
E:B1:R25/R50:24H	< 0.50	< 50.0				
E:B1:R25/R50:24L	< 0.50	< 50.0	3.59	5947	3.31	< 1.00
E:B1:R50:24H	< 0.50	< 50.0				
E:B1:R50/R75:24L	< 0.50	< 50.0				
E:B1:R75/R100:24H	< 0.50	< 50.0				
E:B1:R75/R100:24L	< 0.50	< 50.0				
E:B1:R100/R125:24H	< 0.50	< 50.0	9.34	13940	9.46	< 1.00
E:B1:R100/R125:24L	< 0.50	< 50.0				
E:B1:R125/R150:24L	< 0.50	< 50.0				

Table 3-10 (Con't.)

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range E - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
E:B1:R150/R175:24L	< 0.50	< 50.0				
E:B1:R175:24L	< 0.50	< 50.0				

Table 3-11

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range G - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
G:B1:L75:02	42.1	1240.0				
G:B1:L75:24	1.30	< 20.5				
G:B1:L75:46	0.056	< 20.5				
G:B1:L50:02	192	5460.0				
G:B1:L50:24	14.2	197.0				
G:B1:L50:46	0.170	< 20.5				
G:B1:L25:02	69.5	470.0				
G:B1:L25:24	2.00	31.6				
G:B1:L25:46	0.093	< 20.5				
G:B1:CP:02	277	4470.0				
G:B1:CP:24	62.4	195.0				
G:B1:CP:46	0.190	< 20.5				
G:B1:R25:02	525	7440.0				
G:B1:R25:24	262	3310.0				
G:B1:R25:46	4.20	207.0				
G:B1:R50:02	232	4780.0				
G:B1:R50:24	188	6960.0				
G:B1:R50:46	4.00	209.0				
G:B1:R75:02	108	2270.0				
G:B1:R75:24	80.0	1370.0				
G:B1:R75:46	0.260	59.5				

Table 3-11 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range G - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
G:T1:L75:02	109	1530.0				
G:T1:L75:24	0.560	< 20.5				
G:T1:L75:46	0.099	< 20.5				
G:T1:L50:02	264	5000.0				
G:T1:L50:24	2.90	114.0				
G:T1:L50:46	1.40	43.3				
G:T1:L25:02	1.80	68.5				
G:T1:L25:24	255	3150.0				
G:T1:L25:46	0.696	26.0	4.0	5170	1.7	< 1.0
G:T1:L25:68	4.90	144.0	9.3	3960	1.7	< 1.0
G:T1:CP:02	0.550	12200.0				
G:T1:CP:24	0.340	652.0				
G:T1:CP:46	0.390	< 20.5				
G:T1:R25:02	82.0	2890.0				
G:T1:R25:24	2.20	95.8				
G:T1:R25:46	0.180	< 20.5				
G:T1:R50:02	106	2860.0				
G:T1:R50:24	1.30	55.0				
G:T1:R50:46	0.077	< 20.5				
G:T1:R75:02	47.5	1660.0				
G:T1:R75:24	2.86	111.0				
G:T1:R75:46	0.023	< 20.5				

Table 3-12

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range G - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony	
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
G:B1:L75/L50	4.819	< 50.0					(4-6 FT)
G:B1:L50/L25	< 0.50	< 50.0					(4-6 FT)
G:B1:L25/CP	8.291	330.2					(4-6 FT)
	In-Situ Processed						(4-6 FT)
G:B1:L25/CPB	< 0.50	< 50.0					(6-8 FT)
G:B1:CP/R25	< 0.50	112.0					(4-6 FT)
G:B1:R25/R50	89.34	2788					(4-6 FT)
	In-Situ Processed						(4-6 FT)
G:B1:R25/R50B	29.54	340.3					(6-8 FT)
	In-Situ Processed						(6-8 FT)
G:B1:R25/R50C	< 0.50	< 50.0					(8-10FT)
G:B1:R50/R75	0.575	150.5	9.1	5090	2.5	< 1.0	(4-6 FT)

Table 3-12 (Con't.)

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range G - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony	
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
G:T1:L75/L50	11.635	330.2					(2-4 FT)
	In-Situ Processed						(2-4 FT)
G:T1:CP/R25	456.2	10106	1210	5310	1.7	13.7	(2-4 FT)
	In-Situ Processed						(2-4 FT)
G:T1:R25/R50	81.62	1331.5					(2-4 FT)
	In-Situ Processed						(2-4 FT)
G:B1:R50/R75	4.947	317.4					(2-4 FT)
	In-Situ Processed						(2-4 FT)

Table 3-13

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range H - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
H:B1:L100:02	36.0	887	48.9	8080	3.3	< 1.0
H:B1:L100:24	0.480	28	5.2	12300	5.7	< 1.0
H:B1:L100:46	0.017	9.4	3.9	15500	6.9	< 1.0
H:B1:L75:02	20.7	444	14.5	2270	1.3	1.6
H:B1:L75:24	3.90	130	4.2	7920	3.9	< 1.0
H:B1:L75:46	0.027	7.3	3.3	5990	3.1	< 1.0
H:B1:L50:02	27.2	628	35.5	2990	1.6	1.4
H:B1:L50:24	9.50	310	9.4	7550	3.6	< 1.0
H:B1:L50:46	6.80	151	5.9	3890	3.2	< 1.0
H:B1:L50:68	< 0.50	< 50.0				
H:B1:L50:810	< 0.50	< 50.0				
H:B1:L25:02	64.3	3670	66.9	4550	2.4	10.5
H:B1:L25:24	75.6	1280	27.0	6410	3.5	2.4
H:B1:L25:46	6.90	514	15.3	6790	4.2	< 1.0
H:B1:L25:68	< 50.0	< 50.0				
H:B1:L25:810	< 0.50	< 50.0				
H:B1:CP:02	181	3670	80.5	5890	3.4	1.5
H:B1:CP:24	0.170	9.1	3.8	8310	4.4	< 1.0
H:B1:CP:46	11.8	191	10.6	4170	2.6	< 1.0
H:B1:CP:68	17.098	1338.8				
H:B1:CP:810	1.453	< 50.0				
H:B1:R25:02	102	3350	68.2	6230	4.0	3.6
H:B1:R25:24	0.044	15.1	4.2	11200	5.1	< 1.0
H:B1:R25:46	48.2	2150	115.0	7570	4.0	3.4
H:B1:R25:68	< 0.50	< 50.0				
H:B1:R25:810	< 0.50	< 50.0				
H:B1:R50:02	71.3	1230	28.8	2000	1.5	2.5
H:B1:R50:24	16.2	529	14.0	6600	3.5	< 1.0
H:B1:R50:46	33.4	936	23.6	8380	3.7	< 1.0
H:B1:R50:68	< 0.50	< 50.0	3.2	8830	3.6	< 1.0
H:B1:R50:810	< 0.50	< 50.0				
H:B1:R75:02	32.6	1100	53.1	5000	2.6	< 1.0
H:B1:R75:24	9.80	481	28.1	5080	2.9	< 1.0
H:B1:R75:46	0.031	13.4	3.6	9230	4.1	< 1.0
H:B1:R100:02	4.40	236	12.7	3910	< 5.0	< 5.0
H:B1:R100:24	2.40	141	20.2	3960	1.7	< 1.0
H:B1:R100:46	0.037	7.8	3.7	9580	5.5	< 1.0

Table 3-13 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range H - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
H:T1:L100:02	1.20	240	14.5	6650	2.7	< 1.0
H:T1:L100:24	0.080	26.1	5.4	10900	6.0	< 1.0
H:T1:L100:46	< 0.015	< 4.1	1.8	2030	2.0	< 1.0
H:T1:L75:02	2.50	258	14.1	9000	4.4	< 1.0
H:T1:L75:24	0.051	12.4	4.9	13200	7.4	< 1.0
H:T1:L75:46	0.015	15.3	12.7	10000	7.4	< 1.0
H:T1:L50:02	5.10	688	34.1	9380	5.9	< 1.0
H:T1:L50:24	< 0.015	9.3	2.5	13500	6.8	< 1.0
H:T1:L50:46	0.021	16.3	4.9	9750	3.5	< 1.0
H:T1:L25:02	0.740	210	10.1	10300	5.2	< 1.0
H:T1:L25:24	< 0.015	13.6	3.5	11600	5.5	< 1.0
H:T1:L25:46	< 0.015	11.7	4.0	11400	2.6	< 1.0
H:T1:CP:02	5.20	761	19.4	6470	2.7	< 1.0
H:T1:CP:24	0.050	9.1	2.7	7630	2.6	< 1.0
H:T1:CP:46	0.081	10.3	2.5	10700	2.7	< 1.0
H:T1:R25:02	3.00	86.7	4.8	4430	2.7	< 1.0
H:T1:R25:24	0.800	30.6	2.5	3120	2.2	< 1.0
H:T1:R25:46	0.067	< 4.1	1.6	1780	1.5	< 1.0
H:T1:R50:02	10.7	236	10.1	3530	2.2	< 1.0
H:T1:R50:24	0.044	4.8	2.5	2980	2.1	< 1.0
H:T1:R50:46	0.020	< 4.1	1.2	1070	< 1.0	< 1.0
H:T1:R75:02	1.50	197	10.0	7030	3.7	< 1.0
H:T1:R75:24	0.044	6.3	2.6	2550	2.0	< 1.0
H:T1:R75:46	0.016	< 4.1	4.9	2850	2.7	< 1.0
H:T1:R100:02	1.10	25.1	< 5.0	10500	6.2	< 5.0
H:T1:R100:24	0.101	< 20.5	< 5.0	2490	< 5.0	< 5.0
H:T1:R100:46	0.032	< 20.5	< 5.0	4270	< 5.0	< 5.0

Table 3-14

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range H - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony	
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
H:B1:L100/L75	29.12	2772					(2-4 FT)
H:B1:L100/L75B	8.060	301.3					(4-6 FT)
H:B1:L100/L75C	74.17	823.8					(6-8 FT)
H:B1:L100/L75D	3.37	390.0					(8-10 FT)
H:B1:L75/L50	45.17	3129					(2-4 FT)
H:B1:L75/L50B	91.32	2574					(4-6 FT)
H:B1:L75/L50C	< 0.50	< 50.0					(6-8 FT)
H:B1:L75/L50D	33.60	4063					(8-10 FT)
H:B1:L75/L50E	0.772	< 50.0					(10-12 FT)
H:B1:L50/L25	21.10	836.4					(10-12 FT)
H:B1:L50/L25B	46.50	164.0					(12-14 FT)
H:B1:L50/L25C	1.048	93.6					(14-16 FT)
H:B1:L25/CP	15.063	943.5					(10-12 FT)
	In-Situ Processed						(10-12 FT)
H:B1:CP/R25	48.61	2177					(8-10 FT)
H:B1:CP/R25B	25.91	827.9					(10-12 FT)
H:B1:CP/R25C	19.051	1438.2					(12-14 FT)
H:B1:CP/R25D	< 0.50	< 50.0					(14-16 FT)
H:B1:R25/R50	32.56	324.8					(6-8 FT)
H:B1:R25/R50:810	0.664	104.8					(8-10 FT)
H:B1:R50/R75	9.331	253.4					(6-8 FT)
H:B1:R50/R75:810	< 0.50	59.8					(8-10 FT)
H:B1:R75/R100	474.6	2891	1340	9030	5.2	26.7	(6-8 FT)
H:B1:R75/R100B	3.317	81.0					(8-10 FT)

Table 3-15

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range I - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
I:B1:L100:02	1.920	167.0				
I:B1:L100:24	3.419	266.9				
I:B1:L100:46	0.921	154.4				
I:B1:L75:02	215.4	9569				
I:B1:L75:24	6.274	393.9				
I:B1:L75:46	4.900	956.9				
I:B1:L50:02	325.3	2703	81.0	3650	2.6	2.6
I:B1:L50:24	11.080	984.4				
I:B1:L50:46	8.196	586.2				
I:B1:L50:68	5.666	622.3				
I:B1:L50:810	207	968				
I:B1:L50:1012	6.981	447.6				
I:B1:L50:1214	< 0.50	< 50.0				
I:B1:L25:02	164.2	2311				
I:B1:L25:24	23.11	231.1				
I:B1:L25:46	1.508	137.4				
I:B1:CP:02	43.6	3784				
I:B1:CP:24	2.311	1168.6				
I:B1:CP:46	13.695	190	20.5	4720	2.5	59.8
I:B1:CP:68	2.184	65.2				
I:B1:R25:02	175.0	3858				
I:B1:R25:24	12.572	652.8				
I:B1:R25:46	34.4	2312				
I:B1:R25:68	2.312	244.5				
I:B1:R50:02	76.6	2874				
I:B1:R50:24	10.886	329.6				
I:B1:R50:46	4.842	484.2				
I:B1:R75:02	16.177	689.4	183.0	3740	2.1	19.7
I:B1:R75:24	27.68	1381.9				
I:B1:R75:46	6.599	321.0				
I:B1:R75:68	< 0.50	< 50.0				
I:B1:R100:02	32.10	1440.9				
I:B1:R100:24	7.189	379.9				
I:B1:R100:46	1.884	144.2				

Table 3-15 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range I - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
I:T1:L100:02	3.665	311.5				
I:T1:L100:24	2.017	462.6	30.6	6210	2.3	< 1.0
I:T1:L100:46	< 0.50	64.6				
I:T1:L75:02	3.390	284.1				
I:T1:L75:24	2.841	297.8				
I:T1:L75:46	< 0.50	50.6				
I:T1:L50:02	20.43	432.0				
I:T1:L50:24	10.882	204.3				
I:T1:L50:46	< 0.50	< 50.0				
I:T1:L25:02	21.77	418.6				
I:T1:L25:24	43.6	1577.0				
I:T1:L25:46	< 0.50	< 50.0				
I:T1:CP:02	54.19	2671				
I:T1:CP:24	5.282	198.4				
I:T1:CP:46	< 0.50	< 50.0				
I:T1:R25:02	48.4	2733				
I:T1:R25:24	2.171	132.8	14.5	4150	2.8	< 1.0
I:T1:R25:46	< 0.50	< 50.0				
I:T1:R50:02	15.665	1931.9				
I:T1:R50:24	2.452	231.2				
I:T1:R50:46	< 0.50	< 50.0				
I:T1:R75:02	33.57	1293.5				
I:T1:R75:24	3.063	173.6				
I:T1:R75:46	< 0.50	< 50.0				
I:T1:R100:02	17.503	939.9				
I:T1:R100:24	18.682	409.4				
I:T1:R100:46	< 0.50	< 50.0				

Table 3-15 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range I - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
I:B2:L100:02	1.358	236.6				
I:B2:L100:24	1.736	299.6				
I:B2:L100:46	3.500	135.8				
I:B2:L75:02	< 0.50	< 50.0				
I:B2:L75:24	< 0.50	< 50.0				
I:B2:L75:46	< 0.50	< 50.0				
I:B2:L50:02	3.776	138.0				
I:B2:L50:24	1.247	< 50.0				
I:B2:L50:46	< 0.50	71.4	17.6	5460	26.4	< 1.0
I:B2:L25:02	13.983	617.2				
I:B2:L25:24	4.708	151.3				
I:B2:L25:46	0.847	< 50.0				
I:B2:CP:02	46.91	399.4				
I:B2:CP:24	2.462	1179.4				
I:B2:CP:46	11.794	1304.7	175.0	6440	13.4	< 1.0
I:B2:CP:68	10.6	1010				
I:B2:CP:810	0.299	106				
I:B2:R25:02	18.479	301.9				
I:B2:R25:24	2.184	1165.4				
I:B2:R25:46	4.412	873.0				
I:B2:R50:02	0.728	173.6				
I:B2:R50:24	9.801	375.2				
I:B2:R50:46	6.146	513.8	4.5	4800	10.7	< 1.0
I:B2:R50:68	1.905	357.6				
I:B2:R75:02	< 0.50	501.2				
I:B2:R75:24	< 0.50	< 50.0				
I:B2:R75:46	< 0.50	< 50.0				
I:B2:R100:02	1.019	819.9				
I:B2:R100:24	0.634	114.7				
I:B2:R100:46	1.147	76.2				

Table 3-15 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range I - Toe of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
I:T2:L100:02	1.046	167.0				
I:T2:L100:24	1.920	304.4				
I:T2:L100:46	1.046	266.9				
I:T2:L75:02	6.292	241.9				
I:T2:L75:24	1.920	279.4				
I:T2:L75:46	3.169	291.9	36.3	4220	2.7	< 1.0
I:T2:L50:02	4.168	491.8				
I:T2:L50:24	4.668	616.7				
I:T2:L50:46	0.546	54.6				
I:T2:L25:02	17.816	512.2				
I:T2:L25:24	8.840	589.1				
I:T2:L25:46	< 0.50	< 50.0				
I:T2:CP:02	5.507	697.1				
I:T2:CP:24	18.420	1242.9				
I:T2:CP:46	23.6	1460				
I:T2:CP:68	4.86	1860				
I:T2:R25:02	7.045	896.8				
I:T2:R25:24	19.995	614.7				
I:T2:R25:46	< 0.50	< 50.0				
I:T2:R50:02	5.526	650.1				
I:T2:R50:24	2.184	204.4				
I:T2:R50:46	0.652	441.2	8.5	3720	2.8	< 1.0
I:T2:R75:02	1.380	284.4				
I:T2:R75:24	2.578	138.0				
I:T2:R75:46	No sample	No sample				
I:T2:RI00:02	3.070	230.1				
I:T2:RI00:24	< 0.50	204.4				
I:T2:RI00:46	< 0.50	358.3	3.3	3210	78.0	< 1.0

Table 3-16

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range I - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
I:B1:L100/L75	7.485	162.3				
I:B1:L100/L75B	5.375	260.4				
I:B1:L100/L75C	< 0.50	< 50.0				
I:B1:L75/L50	< 0.50	135.9				

Range I - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
I:B2:L75/L50	< 0.50	< 50.0				
I:B2:L50/L25	< 0.50	< 50.0				
I:B2:L25/CP	12.823	< 50.0				
I:B2:L25/CPB	< 0.50	< 50.0				
I:B2:CP/R25	1.219	< 50.0				
I:B2:R25/R50	< 0.50	< 50.0				
I:B2:R50/R75	< 0.50	< 50.0				
I:B2:R75/R100	< 0.50	< 50.0				

Table 3-17

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range J - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
J:B1:L75:02H	35.0	190.0				
J:B1:L75:02L	74.1	575	148.0	7510	3.8	3.5
J:B1:L75:24H	0.818	18.1				
J:B1:L75:24L	0.078	7.2				
J:B1:L75:46H	0.682	13.7				
J:B1:L75:46L	0.019	6.3				
J:B1:L50:02H	9.88	173.0				
J:B1:L50:02L	251.0	3570				
J:B1:L50:24H	1.35	54.7				
J:B1:L50:24L	0.055	10.9	2.6	11000	5.7	< 0.9
J:B1:L50:46H	1.13	18.0				
J:B1:L50:46L	0.026	6.7				
J:B1:L25:02H	23.900	2460	61.9	3760	12.0	9.6
J:B1:L25:02L	136.0	10.5				
J:B1:L25:24H	0.134	33.4				
J:B1:L25:24L	15.5	493				
J:B1:L25:46H	1.54	43.7				
J:B1:L25:46L	0.090	5.5				
J:B1:R25:02H	8.07	232				
J:B1:R25:02L	187.0	5090				
J:B1:R25:24H	0.383	14.9				
J:B1:R25:24L	1.33	243	14.1	11540	5.4	< 0.9
J:B1:R25:46H	0.095	17.2				
J:B1:R25:46L	0.397	18.3				
J:B1:R50:02H	7.59	94.4				
J:B1:R50:02L	53.1	435				
J:B1:R50:24H	0.058	10.3				
J:B1:R50:24L	0.072	34.5				
J:B1:R50:46H	10.0	376.0				
J:B1:R50:46L	0.017	15.3				
J:B1:R50:68H	0.045	11.1				
J:B1:R50:810H	< 0.015	6.8				
J:B1:R75:02H	3.44	116				
J:B1L:R75:02	6.10	2360				
J:B1:R75:24H	0.210	15.3				
J:B1L:R75:24	0.171	109				
J:B1:R75:46H	0.027	15.6				
J:B1L:R75:46	0.027	6.0				

Table 3-17 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range J - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
J:T1:L75:02	2.38	87				
J:T1:L75:24	0.182	< 4.1				
J:T1:L75:46	0.037	< 4.1				
J:T1:L50:02	6.90	464				
J:T1:L50:24	1.23	25.8				
J:T1:L50:46	0.076	12.3				
J:T1:L25:02	14.60	482				
J:T1:L25:24	0.743	23.7				
J:T1:L25:46	0.038	< 4.1	2.6	1680	1.5	< 0.9
J:T1:R25:02	22.2	287				
J:T1:R25:24	0.838	45.4				
J:T1:R25:46	0.350	17.1				
J:T1:R50:02	3.59	76.5				
J:T1:R50:24	1.47	28.6				
J:T1:R50:46	0.076	< 4.1				
J:T1:R75:02	0.756	30.6				
J:T1:R75:24	0.179	< 4.1				
J:T1:R75:46	< 0.015	< 4.1				

Table 3-18

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range J - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
J:B1:L75/L50:46H	8.844	260.4				
J:B1:L75/L50:68H	< 0.50	< 50.0				
J:B1:L75/L50:46L	< 0.50	< 50.0				
J:B1:L50/L25:46H	< 0.50	< 50.0	4.45	7698	4.67	< 1.0
J:B1:L50/L25:46L	< 0.50	< 50.0				
J:B1:L25/R25:46H	< 0.50	< 50.0				
J:B1:L25/R25:46L	< 0.50	< 50.0				
J:B1:R25/R50:46H	< 0.50	< 50.0				
J:B1:R25/R50:46L	0.562	< 50.0				
J:B1:R50/R75:24H	< 0.50	92.1				
J:B1:R50/R75:24L	13.321	1708.2				
J:B1:R50/R75:46L	1.009	< 50.0				
J:B1:R50/R75:46L	< 0.50	< 50.0				

Table 3-19

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range K - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
K:B1:L100:02	2.200	76.3				
K:B1:L100:24	0.492	52.9				
K:B1:L100:46	0.020	8.0				
K:B1:L75:02	16.600	140.0				
K:B1:L75:24	16.600	287.0				
K:B1:L75:46	0.040	9.6				
K:B1:L50:02	120.000	4450.0				
K:B1:L50:24	315.000	2700.0				
K:B1:L50:46	5.600	76.0				
K:B1:L50:68	<0.50	< 50.0				
K:B1:L50:810	< 0.50	74.4				
K:B1:L25:02	72.400	553.0				
K:B1:L25:24	0.105	12.4				
K:B1:L25:46	0.016	7.7				
K:B1:CP:02	240.000	1390.0				
K:B1:CP:24	0.019	22.0				
K:B1:CP:46	0.032	7.8	1.8	7080	1.9	< 1.0
K:B1:R25:02	25.400	150.0	29.9	10500	6.2	< 1.0
K:B1:R25:24	0.083	8.7				
K:B1:R25:46	0.130	44.0				
K:B1:R50:02	0.621	173.0				
K:B1:R50:24	0.038	34.1				
K:B1:R50:46	< 0.015	9.4				
K:B1:R75:02	0.472	62.2				
K:B1:R75:24	< 0.015	4.4				
K:B1:R75:46	< 0.015	5.0				
K:B1:R100:02	< 0.015	10.4				
K:B1:R100:24	0.022	7.7	1.6	8910	2.2	< 1.0
K:B1:R100:46	< 0.015	8.9				

Table 3-19 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range K - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
K:T1:L100:02	14.400	396.0				
K:T1:L100:24	0.038	5.3				
K:T1:L100:46	< 0.015	< 4.1				
K:T1:L75:02	23.800	751.0				
K:T1:L75:24	0.341	25.0				
K:T1:L75:46	< 0.015	< 4.1				
K:T1:L50:02	43.000	1370.0				
K:T1:L50:24	0.173	13.7	3.4	8300	2.2	< 1.0
K:T1:L50:46	< 0.015	< 4.1				
K:T1:L25:02	28.600	860.0				
K:T1:L25:24	0.582	18.2				
K:T1:L25:46	< 0.015	4.3				
K:T1:CP:02	48.000	1010.0				
K:T1:CP:24	0.271	12.4				
K:T1:CP:46	< 0.015	< 4.1				
K:T1:R25:02	24.000	965.0	69.5	7500	3.2	< 1.0
K:T1:R25:24	2.400	70.9				
K:T1:R25:46	0.016	< 4.1				
K:T1:R50:02	78.400	1920.0				
K:T1:R50:24	2.800	133.0				
K:T1:R50:46	0.025	< 4.1				
K:T1:R75:02	25.100	1170.0				
K:T1:R75:24	0.792	61.4				
K:T1:R75:46	0.017	5.7				
K:T1:R100:02	17.100	623.0				
K:T1:R100:24	1.400	68.0				
K:T1:R100:46	< 0.015	< 4.1				

Table 3-20

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range K - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
K:B1:L100/L106+	< 0.50	< 50.0	5.3	8058	3.95	2.43
K:B1:L100/L75	< 0.50	< 50.0				
K:B1:L75/L50	5.594	243.4				
K:B1:L75/L50:1416	63.93	1588.8	224	10620	6.39	< 1.0
K:B1:L75/L50:1618	< 0.50	626.4				
K:B1:L50/L25	4.839	420.6				
K:B1:L25/CP	< 0.50	< 50.0				
K:B1:CP/R25	< 0.50	< 50.0				
K:B1:R25/R50	< 0.50	< 50.0				
K:B1:R50/R75	< 0.50	< 50.0				
K:B1:R75/R100	< 0.50	< 50.0				

Table 3-21

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range KD - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
KD:B1:L75:02	0.404	25.6				
KD:B1:L75:24	0.050	7.0				
KD:B1:L75:46	0.639	15.9	2.8	5230	21.1	< 1.0
KD:B1:L50:02	0.093	48.8				
KD:B1:L50:24	0.033	9.6				
KD:B1:L50:46	< 0.015	< 4.1				
KD:B1:L25:02	0.058	38.5				
KD:B1:L25:24	0.037	5.3				
KD:B1:L25:46	0.047	< 4.1				
KD:B1:CP:02	0.195	105.0				
KD:B1:CP:24	0.186	9.5				
KD:B1:CP:46	3.100	55.9				
KD:B1:R25:02	0.219	41.8				
KD:B1:R25:24	5.700 **	7.6				
KD:B1:R25:46	2.200	32.6				
KD:B1:R50:02	0.187	55.3				
KD:B1:R50:24	0.33	12.5	2.8	8820	6.5	< 1.0
KD:B1:R50:46	0.045	10.9				
KD:B1:R75:02	1.300	130.0				
KD:B1:R75:24	1.700	55.6				
KD:B1:R75:46	0.147	16.3				

Note : ** QA/QC review resulted in voiding this data point as an outlier statistically.

Table 3-21 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range KD - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
KD:T1:L75:02	0.063	< 4.1				
KD:T1:L75:24	0.024	< 4.1				
KD:T1:L75:46	< 0.015	< 4.1				
KD:T1:L50:02	0.018	11.2	6.7	8320	6.0	< 1.0
KD:T1:L50:24	< 0.015	< 4.1				
KD:T1:L50:46	< 0.015	< 4.1				
KD:T1:L25:02	< 0.015	5.0				
KD:T1:L25:24	< 0.015	< 4.1				
KD:T1:L25:46	< 0.015	< 4.1				
KD:T1:R25:02	0.026	18.7				
KD:T1:R25:24	< 0.015	5.2				
KD:T1:R25:46	< 0.015	< 4.1				
KD:T1:R50:02	0.023	9.5				
KD:T1:R50:24	< 0.015	< 4.1				
KD:T1:R50:46	< 0.015	< 4.1				
KD:T1:R75:02	0.029	14.7				
KD:T1:R75:24	< 0.015	< 4.1				
KD:T1:R75:46	< 0.015	< 4.1	2.0	2800	1.6	< 1.0

Table 3-22

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range KD - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
KD:B1:L75/L50	< 0.50	< 50.0				
KD:B1:L50/L25	< 0.50	< 50.0				
KD:B1:L25/CP	< 0.50	< 50.0				
KD:B1:CP/R25	< 0.50	< 50.0				
KD:B1R25/R50	< 0.50	< 50.0				
KD:B1:R50/R75	< 0.50	< 50.0	2.62	6090	2.91	< 1.00

Table 3-23

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range N - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
N:B1:L200:02	< 0.50	< 50.0				
N:B1:L200:24	< 0.50	< 50.0	5.0	7130	3.7	< 1.0
N:B1:L200:46	< 0.50	< 50.0				
N:B1:L175:02	21.17	2763				
N:B1:L175:24	< 0.50	< 50.0				
N:B1:L175:46	< 0.50	56.5				
N:B1:L150:02	1.729	276.3				
N:B1:L150:24	< 0.50	< 50.0				
N:B1:L150:46	< 0.50	< 50.0				
N:B1:L125:02	23.07	165.9				
N:B1:L125:24	1.141	62.3				
N:B1:L125:46	< 0.50	< 50.0				
N:B1:L100:02	28.25	256.6				
N:B1:L100:24	0.623	< 50.0				
N:B1:L100:46	< 0.50	< 50.0				
N:B1:L75:02	30.84	1668.0				
N:B1:L75:24	6.968	1240.7				
N:B1:L75:46	< 0.50	< 50.0				
N:B1:L50:02	4.637	62.3	3.8	3240	1.9	< 1.0
N:B1:L50:24	< 0.50	75.3				
N:B1:L50:46	< 0.50	< 50.0				
N:B1:L25:02	43.78	852.2				
N:B1:L25:24	< 0.50	< 50.0				
N:B1:L25:46	2.566	114.1				
N:B1:R25:02	1.170	86.5				
N:B1:R25:24	< 0.50	86.5				
N:B1:R25:46	< 0.50	< 50.0				
N:B1:R50:02	< 0.50	< 50.0				
N:B1:R50:24	< 0.50	< 50.0	3.0	3230	1.9	< 1.0
N:B1:R50:46	< 0.50	< 50.0				
N:B1:R75:02	1.041	73.6				
N:B1:R75:24	< 0.50	< 50.0				
N:B1:R75:46	< 0.50	< 50.0				
N:B1:R100:02	< 0.50	< 50.0				
N:B1:R100:24	7.349	394.5				
N:B1:R100:46	< 0.50	< 50.0				
N:B1:R125:02	< 0.50	60.8				
N:B1:R125:24	< 0.50	< 50.0				
N:B1:R125:46	< 0.50	< 50.0	2.7	8900	4.9	< 1.0

Table 3-23 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range N - Face of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
N:B1:R150:02	< 0.50	< 50.0				
N:B1:R150:24	< 0.50	< 50.0				
N:B1:R150:46	< 0.50	< 50.0				
N:B1:R175:02	< 0.50	< 50.0				
N:B1:R175:24	< 0.50	< 50.0				
N:B1:R175:46	< 0.50	< 50.0				
N:B1:R200:02	< 0.50	61.4				
N:B1:R200:24	< 0.50	< 50.0				
N:B1:R200:46	< 0.50	< 50.0	1.9	1910	7.5	< 1.0

Table 3-23 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range N - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
N:T1:L200:02	< 0.50	< 50.0				
N:T1:L200:24	< 0.50	< 50.0				
N:T1:L200:46	< 0.50	< 50.0				
N:T1:L175:02	1.186	191.6				
N:T1:L175:24	< 0.50	< 50.0				
N:T1:L175:46	< 0.50	< 50.0				
N:T1:L150:02	1.939	204.6	5.4	3990	2.5	< 1.0
N:T1:L150:24	< 0.50	< 50.0				
N:T1:L150:46	< 0.50	< 50.0				
N:T1:L125:02	< 0.50	< 50.0				
N:T1:L125:24	< 0.50	< 50.0				
N:T1:L125:46	< 0.50	< 50.0				
N:T1:L100:02	5.455	778.1				
N:T1:L100:24	< 0.50	< 50.0				
N:T1:L100:46	< 0.50	< 50.0				
N:T1:L75:02	1.971	147.0				
N:T1:L75:24	< 0.50	71.9				
N:T1:L75:46	< 0.50	71.9				
N:T1:L50:02	3.975	309.8				
N:T1:L50:24	< 0.50	< 50.0				
N:T1:L50:46	< 0.50	< 50.0	2.8	2990	2.1	< 1.0
N:T1:L25:02	1.593	297.3				
N:T1:L25:24	< 0.50	< 50.0				
N:T1:L25:46	< 0.50	< 50.0				
N:T1:R25:02	4.100	147				
N:T1:R25:24	< 0.50	< 50.0				
N:T1:R25:46	< 0.50	< 50.0				
N:T1:R50:02	2.721	131.4				
N:T1:R50:24	0.969	84.4	2.0	1940	1.3	< 1.0
N:T1:R50:46	< 0.50	< 50.0				
N:T1:R75:02	< 0.50	61.0				
N:T1:R75:24	1.197	96.2				
N:T1:R75:46	< 0.50	< 50.0				
N:T1:R100:02	< 0.50	< 50.0				
N:T1:R100:24	< 0.50	< 50.0				
N:T1:R100:46	< 0.50	< 50.0				
N:T1:R125:02	< 0.50	51.4	3.2	4990	2.6	< 1.0
N:T1:R125:24	< 0.50	< 50.0				
N:T1:R125:46	< 0.50	< 50.0				

Table 3-23 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range N - Toe of Primary Berm (Con't.)

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
N:T1:R150:02	< 0.50	< 50.0				
N:T1:R150:24	< 0.50	< 50.0				
N:T1:R150:46	< 0.50	< 50.0				
N:T1:R175:02	< 0.50	< 50.0				
N:T1:R175:24	< 0.50	< 50.0				
N:T1:R175:46	< 0.50	< 50.0				
N:T1:R200:02	< 0.50	< 50.0				
N:T1:R200:24	< 0.50	< 50.0				
N:T1:R200:46	< 0.50	< 50.0				

Table 3-24

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range N - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
N:B1:L200/L175	< 0.50	< 50.0				
N:B1:L175/L150	< 0.50	< 50.0				
N:B1:L150/L125	< 0.50	< 50.0				
N:B1:L125/L100	< 0.50	< 50.0				
N:B1:L100/L75:24	< 0.50	< 50.0	3.41	2540	2.1	< 1.00
N:B1:L75/L50:24	< 0.50	< 50.0				
N:B1:L50/L25	< 0.50	< 50.0				
N:B1:L25/R25	< 0.50	< 50.0				
N:B1:R25/R50	< 0.50	< 50.0	3.25	2695	1.13	2.43
N:B1:R50/R75	< 0.50	< 50.0				
N:B1:R75/R100:24	< 0.50	< 50.0				
N:B1:R100/R125:24	< 0.50	< 50.0				
N:B1:R125/R150	< 0.50	< 50.0				
N:B1:R150/R175	< 0.50	< 50.0				
N:B1:R175/R200	< 0.50	< 50.0				

Table 3-25

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range O - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
O:B1:L50:02	12.50	250.0				
O:B1:L50:24	0.050	< 4.1				
O:B1:L50:46	93.30	8.4				
O:B1:L50:68	< 0.50	< 50.0				
O:B1:L25:02	11.90	745.0				
O:B1:L25:24	0.396	12.0	1.6	2310	1.4	< 1.0
O:B1:L25:46	0.056	< 4.1				
O:B1:R25:02	126.0	93.3				
O:B1:R25:24	1.63	260.0				
O:B1:R25:46	0.353	6.7				
O:B1:R50:02	8.75	285.0				
O:B1:R50:24	0.295	17.3				
O:B1:R50:46	0.016	< 4.1				

Range O - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
O:T1:L50:02	1.56	6.0				
O:T1:L50:24	< 0.015	< 4.1				
O:T1:L50:46	0.015	79.7				
O:T1:L25:02	0.774	68.2				
O:T1:L25:24	< 0.015	< 4.1				
O:T1:L25:46	0.096	< 4.1				
O:T1:R25:02	3.500	1570.0	26.1	9020	7.2	< 1.0
O:T1:R25:24	0.135	8.7				
O:T1:R25:46	< 0.015	< 4.1				
O:T1:R50:02	1.27	29.1				
O:T1:R50:24	0.018	< 4.1				
O:T1:R50:46	< 0.015	< 4.1				

Table 3-25 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range O - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
O:B2:L50:02	0.052	< 4.1				
O:B2:L50:24	0.511	16.7				
O:B2:L50:46	0.084	< 4.1				
O:B2:L25:02	0.028	< 4.1	3.0	2270	2.4	< 1.0
O:B2:L25:24	1.14	14.2				
O:B2:L25:46	0.169	23.1				
O:B2:R25:02	0.644	42.3				
O:B2:R25:24	21.20	12.2				
O:B2:R25:46	20.80	258.0				
O:B2:R25:68	32.87	2392				
O:B2:R25:810	0.713	64.0				
O:B2:R50:02	5.10	76.5				
O:B2:R50:24	11.800	975.0	44.6	6060	4.4	< 1.0
O:B2:R50:46	22.10	70.8				
O:B2:R50:68	8.619	137.4	6.89	2781	2.66	< 1.00
O:B2:R50:810	< 0.50	< 50.0				

Range O - Toe of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
O:T2:L50:02	32.60	247.0				
O:T2:L50:24	6.68	54.4				
O:T2:L50:46	4.30	126.0				
O:T2:L25:02	0.932	11.2				
O:T2:L25:24	0.023	< 4.1				
O:T2:L25:46	0.017	< 4.1				
O:T2:R25:02	10.70	621.0				
O:T2:R25:24	0.151	4.8				
O:T2:R25:46	4.300	493.0	12.0	3500	3.2	< 1.0
O:T2:R50:02	16.40	1160.0				
O:T2:R50:24	6.73	902.0				
O:T2:R50:46	4.39	337.0				



Table 3-26

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range O - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
O:B1:L75/L50:46	< 0.50	< 50.0				
O:B1:L75/L50:68	< 0.50	< 50.0	1.45	1382	< 1.00	< 1.00
O:B1:L50/L25	0.559	4.92	3.29	3022	1.31	2.12
O:B1:L50/L25:46	< 0.50	< 50.0				
O:B1:L50/L25:68	< 0.50	< 50.0				
O:B1:L25/R25	< 0.50	< 50.0				
O:B1:R25/R50	< 0.50	< 50.0				

Range O - Face of Secondary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
O:B2:L50/L25	< 0.50	< 50.0				
O:B2:L25/R25:46	< 0.50	< 50.0				
O:B2:L25/R25:68	< 0.50	< 50.0				
O:B2:L25/R25:810	< 0.50	< 50.0				
O:B2:R25/R50:810	< 0.50	< 50.0				

Table 3-27

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range P - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
P:B1:L125:02	< 0.50	73.4				
P:B1:L125:24	< 0.50	73.4				
P:B1:L125:46	1.089	330.2				
P:B1:L100:02	< 0.50	99.1				
P:B1:L100:24	< 0.50	99.1				
P:B1:L100:46	< 0.50	124.8	11.6	12350	6.1	< 1.0
P:B1:L75:02	< 0.50	99.1				
P:B1:L75:24	< 0.50	124.8				
P:B1:L75:46	< 0.50	86.3				
P:B1:L50:02	< 0.50	150.5				
P:B1:L50:24	< 0.50	< 50.0	2.0	2690	1.7	< 1.0
P:B1:L50:46	18.863	150.5				
P:B1:L50:68	< 0.50	< 50.0				
P:B1:L25:02	< 0.50	60.6				
P:B1:L25:24	< 0.50	124.8				
P:B1:L25:46	< 0.50	112.0				
P:B1:R25:02	32.76	484.2				
P:B1:R25:24	< 0.50	60.6				
P:B1:R25:46	< 0.50	86.3				
P:B1:R50:02	1.536	146.3	4.9	9300	4.3	< 1.0
P:B1:R50:24	< 0.50	< 50.0				
P:B1:R50:46	1.651	63.0				
P:B1:R75:02	10.363	1086.2				
P:B1:R75:24	4.98	301.0				
P:B1:R75:46	< 0.50	< 50.0				
P:B1:R100:02	0.619	51.1				
P:B1:R100:24	< 0.50	< 50.0				
P:B1:R100:46	< 0.50	63.0				
P:B1:R125:02	< 0.50	< 50.0				
P:B1:R125:24	< 0.50	< 50.0				
P:B1:R125:46	< 0.50	< 50.0				



Table 3-27 (Con't.)

**Summary of Laboratory Analytical Data
Pre-Excavation Berm Soil Samples**

Range P - Toe of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
P:T1:L125:02	< 0.50	< 50.0				
P:T1:L125:24	< 0.50	< 50.0				
P:T1:L125:46	< 0.50	< 50.0	2.3	3200	2.0	< 1.0
P:T1:L100:02	0.505	86.8				
P:T1:L100:24	< 0.50	< 50.0				
P:T1:L100:46	< 0.50	< 50.0				
P:T1:L75:02	< 0.50	< 50.0				
P:T1:L75:24	< 0.50	63.0				
P:T1:L75:46	< 0.50	< 50.0				
P:T1:L50:02	0.790	157.5				
P:T1:L50:24	< 0.50	< 50.0	6.0	12400	7.5	< 1.0
P:T1:L50:46	< 0.50	< 50.0				
P:T1:L25:02	1.705	301.2				
P:T1:L25:24	< 0.50	52.9				
P:T1:L25:46	< 0.50	52.9				
P:T1:R25:02	6.018	1189.9				
P:T1:R25:24	0.529	< 50.0				
P:T1:R25:46	< 0.50	< 50.0				
P:T1:R50:02	7.064	588.7	85.4	7500	3.9	< 1.0
P:T1:R50:24	0.790	< 50.0				
P:T1:R50:46	< 0.50	< 50.0				
P:T1:R75:02	8.240	993.9				
P:T1:R75:24	< 0.50	66.0				
P:T1:R75:46	< 0.50	< 50.0				
P:T1:R100:02	2.634	483.3				
P:T1:R100:24	1.082	69.4				
P:T1:R100:46	< 0.50	< 50.0				
P:T1:R125:02	< 0.50	< 50.0				
P:T1:R125:24	< 0.50	< 50.0				
P:T1:R125:46	< 0.50	< 50.0				

Table 3-28

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range P - Face of Primary Berm

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
P:B1:L125:46	< 0.50	< 50.0				
P:B1:L125/L100:46	< 0.50	< 50.0				
P:B1:L100/L75:46	< 0.50	< 50.0				
P:B1:L75/L50:46	< 0.50	< 50.0				
P:B1:L75/L50:68	< 0.50	< 50.0	4.04	10000	5.70	< 1.00
P:B1:L50:68	< 0.50	< 50.0				
P:B1:L50/L25:46	< 0.50	< 50.0				
P:B1:L50/L25:68	< 0.50	< 50.0				
P:B1:L25/R25:46	< 0.50	< 50.0				
P:B1:R25/R50:46	< 0.50	< 50.0				
P:B1:R50/R75:46	< 0.50	< 50.0				
P:B1:R75/R100:46	< 0.50	< 50.0				
P:B1:R100/R125:46	< 0.50	< 50.0	2.67	3080	2.47	< 1.00
P:B1:R125:46	< 0.50	< 50.0				

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Reaction Conditions		Yield (%)	mp (°C)	lit. mp (°C)
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
81	82	83	84	85
86	87	88	89	90
91	92	93	94	95
96	97	98	99	100

Table 3-29

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range SE - Face of Pop-up Target Protectors

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SE:125M:B:24	3.371	147.9				
SE:200M:C:24	< 0.50	< 50.0				
SE:250M:B:24	< 0.50	< 50.0				
SE:300M:C:24	< 0.50	< 50.0				
SE:515M:D:24	< 0.50	< 50.0				
SE:570M:C:24	< 0.50	< 50.0				
SE:630M:D:24	< 0.50	< 50.0				

Table 3-30

**Summary of Laboratory Analytical Data
Post-Excavation Berm Soil Samples**

Range SW - Face of Pop-up Target Protectors

	TCLP Leachable Lead	Total Lead	Total Copper	Total Iron	Total Nickel	Total Antimony
Sample ID	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SW:100M:B:24	< 0.50	2607				
SW:125M:B:24	0.875	102.8				
SW:150M:B:24	< 0.50	< 50.0	7.6	10720	7.8	< 1.0
SW:200M:C:24	< 0.50	< 50.0				
SW:250M:B:24	< 0.50	< 50.0				
SW:300M:B:24	< 0.50	< 50.0				
SW:400M:C:24	< 0.50	< 50.0				
SW:460M:C:24	< 0.50	< 50.0				
SW:515M:C:24	< 0.50	< 50.0				
SW:570M:C:24	< 0.50	< 50.0				
SW:630M:B:24	< 0.50	< 50.0				
SW:740M:C:24	< 0.50	< 50.0	4.2	11720	7.2	< 1.0

Table 3-31

**Summary of Laboratory Analytical Data
Ex-Situ Process Confirmation Samples**

(Project Performance Criteria TCLP Leachable Lead < 5.0 mg/L)

Sample ID	TCLP Leachable Lead (mg/L)	Total Lead (mg/kg)
TSP-01	0.316	1600
TSP-02	< 0.50	2839
TSP-03	< 0.50	835.1
TSP-04	< 0.50	1386.9
TSP-05	< 0.50	1493.9
TSP-06	0.784	1985.8
TSP-07	< 0.50	1331.5
TSP-08	< 0.50	380.9
TSP-09	< 0.50	211.9
TSP-10	< 0.50	832.1
TSP-11	< 0.50	9588
TSP-12	< 0.50	420.6
TSP-13	< 0.50	175.5
TSP-14	< 0.50	138.8
TSP-15	< 0.50	650.1
TSP-16	< 0.50	153.0
TSP-17	< 0.50	204.3
TSP-18	< 0.50	1751.2
TSP-19	< 0.50	1690.8
TSP-20	< 0.50	1015.7
TSP-21	< 0.50	438.8
TSP-22	< 0.50	642.0
TSP-23	< 0.50	224.5
TSP-24	< 0.50	303.4
TSP-25	< 0.50	1732.3
TSP-26	< 0.50	136.6
TSP-27	< 0.50	57.7
TSP-28	< 0.50	326.6
TSP-29	< 0.50	621.4
TSP-30	< 0.50	320.9
TSP-31	< 0.50	656.5
TSP-32	< 0.50	398.2
TSP-33	< 0.50	313.0
TSP-34	< 0.50	< 50.0
TSP-35	< 0.50	217.6
TSP-36	1.615	309.8
TSP-37	< 0.50	79.6
TSP-38	< 0.50	210.7
TSP-39	< 0.50	587.4
TSP-40	< 0.50	194.0

Table 3-31 (Con't.)**Summary of Laboratory Analytical Data
Ex-Situ Process Confirmation Samples****(Project Performance Criteria TCLP Leachable Lead < 5.0 mg/L)**

Sample ID	TCLP Leachable Lead (mg/L)	Total Lead (mg/kg)
TSP-41	< 0.50	442.6
TSP-42	< 0.50	458.6
TSP-43	< 0.50	277.8
TSP-44	< 0.50	72.8
TSP-45	< 0.50	140.2
TSP-46	< 0.50	252.5
TSP-47	< 0.50	280.9
TSP-48	< 0.50	112.5
TSP-49	< 0.50	65.4
TSP-50	< 0.50	575.1
TSP-51	< 0.50	309.2
TSP-52	< 0.50	64.2
TSP-53	< 0.50	84.8
TSP-54	< 0.50	< 50.0
TSP-55	< 0.50	< 50.0
TSP-56	< 0.50	57.0

Table 3-32

**Summary of Laboratory Analytical Data
In-Situ Process Confirmation Samples**

(Project Performance Criteria TCLP Leachable Lead < 5.0 mg/L)

Sample ID	TCLP Leachable Lead (mg/L)	Total Lead (mg/kg)
TS-A-01	< 0.50	< 50.0
TS-B-01	< 0.50	93.5
TS-B-02	< 0.50	176.7
TS-B-03	< 0.50	54.6
TS-B-04	< 0.50	117.3
TS-B-05	< 0.50	313.0
TS-B-06	< 0.50	< 50.0
TS-B-07	< 0.50	104.5
TS-C-01	< 0.50	126.6
TS-D-01	< 0.50	210.3
Range E	No In-Situ Processing Required	
TS-G-01	0.526	1036.1
TS-G-02	< 0.50	268.4
TS-H-01	< 0.50	502.6
TS-H-02	< 0.50	396.1
TS-H-03	< 0.50	298.6
TS-H-04	< 0.50	530.9
TS-H-05	< 0.50	1371.5
TS-H-06	< 0.50	847.9
TS-I-01	< 0.50	401.4
TS-I-02	< 0.50	391.9
TS-I-03	< 0.50	412.8
TS-I-04	< 0.50	372.2
TS-I-05	< 0.50	249.0
TS-J-01	< 0.50	69.6
TS-J-02	< 0.50	< 50.0
TS-K-01	< 0.50	< 50.0
Range KD	No In-Situ Processing Required	
TS-N-01	< 0.50	< 50.0
TS-O-01	< 0.50	< 50.0
TS-P-01	< 0.50	< 50.0
Range SE/SW	No In-Situ Processing Required	

Table 3-33

Summary of Air Monitoring Sample Analytical Results

Sample ID	Area	Location	Date	Total Lead (mg/m3)
227MMRGU1	Range G	Up Wind	2/27/98	< 0.0005
227MMRGD1	Range G	Down Wind	2/27/98	< 0.0005
227MMRGD2	Range G	Down Wind	2/27/98	< 0.0005
305MMRGU1	Range G	Up Wind	3/5/98	< 0.0006
305MMRGD1	Range G	Down Wind	3/5/98	< 0.0006
305MMRGD2	Range G	Down Wind	3/5/98	< 0.0006
310MMRHU1	Range H	Up Wind	3/10/98	< 0.0003
310MMRHD1	Range H	Down Wind	3/10/98	< 0.0003
310MMRHD2	Range H	Down Wind	3/10/98	< 0.0003
310MMRTU1	Processing	Up Wind	3/10/98	< 0.0003
310MMRTD1	Processing	Down Wind	3/10/98	< 0.0003
310MMRTD2	Processing	Down Wind	3/10/98	< 0.0003
317MMRTU1	Processing	Up Wind	3/17/98	< 0.008
317MMRTD1	Processing	Down Wind	3/17/98	< 0.008
317MMRTD2	Processing	Down Wind	3/17/98	< 0.008
323MMRTU1	Processing	Up Wind	3/23/98	< 0.008
323MMRTD1	Processing	Down Wind	3/23/98	< 0.008
323MMRTD2	Processing	Down Wind	3/23/98	< 0.008
323MMRKU1	Range K	Up Wind	3/23/98	< 0.008
323MMRKD1	Range K	Down Wind	3/23/98	< 0.008
323MMRKD2	Range K	Down Wind	3/23/98	< 0.008
331MMRTU1	Processing	Up Wind	3/31/98	< 0.008
331MMRTD1	Processing	Down Wind	3/31/98	< 0.008
331MMRTD2	Processing	Down Wind	3/31/98	< 0.008
331MMRIU1	Range I	Up Wind	3/31/98	< 0.01
331MMRID1	Range I	Down Wind	3/31/98	< 0.01
331MMRID2	Range I	Down Wind	3/31/98	< 0.01
406MMRTU1	Processing	Up Wind	4/6/98	< 0.008
406MMRTD1	Processing	Down Wind	4/6/98	< 0.008
406MMRTD2	Processing	Down Wind	4/6/98	< 0.008
406MMROU1	Range O	Up Wind	4/6/98	< 0.008
406MMROD1	Range O	Down Wind	4/6/98	< 0.008
406MMROD2	Range O	Down Wind	4/6/98	< 0.008

Table 3-33 (Con't.)

Summary of Air Monitoring Sample Analytical Results

Sample ID	Area	Location	Date	Total Lead (mg/m3)
418MMRTU1	Processing	Up Wind	4/18/98	< 0.01
418MMRTD1	Processing	Down Wind	4/18/98	< 0.01
418MMRTD2	Processing	Down Wind	4/18/98	< 0.01
418MMRSEU1	Range SE	Up Wind	4/18/98	< 0.010
418MMRSED1	Range SE	Down Wind	4/18/98	< 0.01
418MMRSED2	Range SE	Down Wind	4/18/98	< 0.01
421MMRTU1	Processing	Up Wind	4/21/98	< 0.008
421MMRTD1	Processing	Down Wind	4/21/98	< 0.008
421MMRTD2	Processing	Down Wind	4/21/98	< 0.008
421MMRSEU1	Range SE	Up Wind	4/21/98	< 0.010
421MMRSED1	Range SE	Down Wind	4/21/98	< 0.009
421MMRSED2	Range SE	Down Wind	4/21/98	< 0.009
428MMRTU1	Processing	Up Wind	4/28/98	< 0.008
428MMRTD1	Processing	Down Wind	4/28/98	< 0.008
428MMRTD2	Processing	Down Wind	4/28/98	< 0.008
428MMRBU1	Range B	Up Wind	4/28/98	< 0.008
428MMRBD1	Range B	Down Wind	4/28/98	< 0.008
428MMRBD2	Range B	Down Wind	4/28/98	< 0.008
508MMRTU1	Processing	Up Wind	5/8/98	0.012
508MMRTD1	Processing	Down Wind	5/8/98	0.009
508MMRTD2	Processing	Down Wind	5/8/98	< 0.009
508MMRBU1	Range B	Up Wind	5/8/98	< 0.05
508MMRBD1	Range B	Down Wind	5/8/98	< 0.01
508MMRBD2	Range B	Down Wind	5/8/98	< 0.009
512MMRPU1	Range P	Up Wind	5/12/98	< 0.008
512MMRPD1	Range P	Down Wind	5/12/98	< 0.008
512MMRPD2	Range P	Down Wind	5/12/98	< 0.008
512MMRBU1	Range B	Up Wind	5/12/98	< 0.008
512MMRBD1	Range B	Down Wind	5/12/98	< 0.008
512MMRBD2	Range B	Down Wind	5/12/98	< 0.008
518MMRTU1	Processing	Up Wind	5/18/98	< 0.008
518MMRTD1	Processing	Down Wind	5/18/98	< 0.008
518MMRTD2	Processing	Down Wind	5/18/98	< 0.008

Table 3-33 (Con't.)**Summary of Air Monitoring Sample Analytical Results**

Sample ID	Area	Location	Date	Total Lead (mg/m3)
518MMRCU1	Range C	Up Wind	5/18/98	< 0.008
518MMRCD1	Range C	Down Wind	5/18/98	< 0.008
518MMRCD2	Range C	Down Wind	5/18/98	< 0.008
527MMRCU1	Range C	Up Wind	5/27/98	< 0.03
527MMRCD1	Range C	Down Wind	5/27/98	< 0.03
527MMRCD2	Range C	Down Wind	5/27/98	< 0.03
602MMRTU1	Processing	Up Wind	6/2/98	< 0.008
602MMRTD1	Processing	Down Wind	6/2/98	< 0.008
602MMRTD2	Processing	Down Wind	6/2/98	< 0.008
602MMRAU1	Range A	Up Wind	6/2/98	< 0.008
602MMRAD1	Range A	Down Wind	6/2/98	< 0.008
602MMRAD2	Range A	Down Wind	6/2/98	< 0.008

APPENDIX A
RANGE SPECIFIC PROCESSING PLANS

GUIDE TO UNDERSTANDING RANGE SPECIFIC PROCESSING PLANS

The following Range Specific Processing Plans (Processing Plan) represent the actual maintenance methods implemented for the removal of bullet fragments and/or chemical fixation of leachable lead. Prior to starting work at a range, a Processing Plan was developed from a combination of visual observations and laboratory data from pre-excavation soils samples. The Processing Plans were used as a guide for field operations and updated to reflect actual work performed.

Each berm's overall length was measured and pre-excavation soil sample locations selected with USEPA's on-site representative based upon the sampling approach detailed in the Revised Work Plan. Each Processing Plan depicts a specific range berm in profile (along the length of the berm). Berms are identified by Range, Primary or Secondary, and Berm (meaning the sloped face of the berm) or Toe (area immediately in front of the berm extending 10 feet from the base of the berm face). The center point of the berms were identified (noted as 'CP') and distances in feet left of center (i.e., L75) or right of center (i.e., R25).

Visual observations were made to determine the presence of "recoverable" bullet fragments. The Revised Work Plan defined "recoverable" as those bullet fragments that would be retained on the No. 4 screen (approximately 3/16-inch mesh opening) in the screening portion of the Ex-Situ Process Equipment. If "recoverable" bullet fragments were present in a section of a berm, the soils in that section were excavated and transported to the Central Processing Area for Ex-Situ Processing (Screening and Chemical Fixation). These sections are noted as "Exc" in the Processing Plans. Each section was approximately 25 feet along the length of the berm (centered on the pre-excavation sample location), the full height of the berm or 10 foot width of the toe area, and 2 feet in thickness.

After completing excavation based upon visual criteria (i.e., "recoverable" fragments were no longer present), additional In-Situ Processing was performed at a range only if sections of the berm still contained soils with concentrations of leachable lead exceeding 5.0 mg/L based upon the pre-excavation soil sample laboratory data. The sections that received additional In-Situ Processing are noted as "In-Situ" in the Processing Plans.

At some ranges (i.e., Range G), initial post-excavation confirmation soil sampling efforts detected leachable lead at concentrations greater than 5.0 mg/L. When this occurred, additional In-Situ Processing was performed. Remember that the post-excavation confirmation samples were collected at the mid-point between pre-excavation sample locations, so the additional In-Situ Processing designation is centered between two sections (i.e., Range G, sections R25/R50 depths of 4 to 6 feet and 6 to 8 feet).

Sections without an "Exc" or "In-Situ" designation mean that no visual "recoverable" bullet fragments were present and that the pre-excavation soil sample laboratory data indicated that leachable lead concentrations were less than 5.0 mg/L. Therefore, no excavation or In-Situ Processing was necessary to meet the requirements of the Administrative Order.

Range A - Processing Plan

Processing Plan - Actual Completed										
Range A - Primary Berm										
	L75	L50	L25	CP	R25	R50	R75	R100		
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc		
2 - 4 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc		
4 - 6 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc		
6 - 8 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc		
8 - 10 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc		
Range A - Primary Toe										
	L75	L50	L25	CP	R25	R50	R75			
0 - 2 FT			Exc	Exc	Exc	Exc				
2 - 4 FT										
4 - 6 FT										
Range A - Secondary Berm										
	L75	L50	L25	CP	R25	R50	R75			
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT			Exc	Exc	Exc	Exc				
4 - 6 FT										
Range A - Secondary Toe										
	L75	L50	L25	CP	R25	R50	R75			
0 - 2 FT		In-Situ		In-Situ			In-Situ			
2 - 4 FT										
4 - 6 FT										

Range B - Processing Plan

Processing Plan - Actual Completed												
Range B - Berm (Corrected Sample Locations)												
	L300	L275	L250	L225	L200	L175	L150	L125	L100	L75	L50	L25
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT					In-Situ	In-Situ	In-Situ	In-Situ		In-Situ	In-Situ	In-Situ
4 - 6 FT										In-Situ	In-Situ	
6 - 8 FT												
8 - 10 FT												
10 - 12 FT												
	R25	R50	R75	R100	R125	R150	R175	R200	R225	R250	R275	R300
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ		In-Situ	In-Situ	In-Situ	
4 - 6 FT	In-Situ	In-Situ			In-Situ	In-Situ	In-Situ		In-Situ	In-Situ	In-Situ	
6 - 8 FT		In-Situ			In-Situ	In-Situ			In-Situ	In-Situ		
8 - 10 FT		In-Situ										
10 - 12 FT												
Range B - Toe (Corrected Sample Locations)												
	L300	L275	L250	L225	L200	L175	L150	L125	L100	L75	L50	L25
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT							In-Situ	In-Situ		In-Situ	In-Situ	In-Situ
4 - 6 FT								In-Situ		In-Situ		In-Situ
6 - 8 FT								In-Situ		In-Situ		In-Situ
8 - 10 FT								In-Situ				
10 - 12 FT								In-Situ				
12 - 14 FT												
	R25	R50	R75	R100	R125	R150	R175	R200	R225	R250	R275	R300
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT	In-Situ	In-Situ									In-Situ	
4 - 6 FT	In-Situ	In-Situ										
6 - 8 FT	In-Situ	In-Situ										
8 - 10 FT	In-Situ											
10 - 12 FT												

Range C - Processing Plan

Processing Plan - Actual Completed												
Range C - Primary Berm												
	L150	L125	L100	L75	L50	L25	CP	R25	R50	R75	R100	R125
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT							In-Situ		In-Situ			In-Situ
4 - 6 FT							In-Situ					In-Situ
6 - 8 FT												
8 - 10 FT												
Range C - Primary Toe												
	L150	L125	L100	L75	L50	L25	CP	R25	R50	R75	R100	R125
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT												
4 - 6 FT												
6 - 8 FT												
8 - 10 FT												
Range C - Secondary Berm												
	L150	L125	L100	L75	L50	L25	CP	R25	R50	R75	R100	R125
0 - 2 FT							Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT	No "Left" portion of secondary berm.											
4 - 6 FT												
6 - 8 FT												
8 - 10 FT												
Range C - Secondary Toe												
	L150	L125	L100	L75	L50	L25	CP	R25	R50	R75	R100	R125
0 - 2 FT												
2 - 4 FT	No "Left" portion of secondary toe.											
4 - 6 FT												
6 - 8 FT												
8 - 10 FT												

Range D- Processing Plan

[illegible]

Range E - Processing Plan

Processing Plan - Actual Completed											
Range E - Primary Berm High Portion											
0 - 2 FT	L100	L75	L50	L25	CP	R25	R50	R100			
	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT											
4 - 6 FT											
Range E - Primary Berm Low Portion											
0 - 2 FT	L175	L150	L125	L100	L75	L50	L25	CP	R25	R50	R75
	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT											
4 - 6 FT											
Range E - Primary Toe											
0 - 2 FT	L175	L150	L125	L100	L75	L50	L25	CP	R25	R50	R75
2 - 4 FT											
4 - 6 FT											

Range G - Processing Plan

Processing Plan - Actual Completed										
Range G - Primary Berm										
	L75	L50	L25	CP	R25	R50	R75			
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT		Exc	Exc	Exc	Exc	Exc	Exc			
4 - 6 FT			In-Situ	In-Situ	In-Situ	In-Situ				
6 - 8 FT					In-Situ	In-Situ				
Range G - Primary Toe										
	L75	L50	L25	CP	R25	R50	R75			
0 - 2 FT	Exc	Exc	Exc		Exc	Exc	Exc			
2 - 4 FT	In-Situ		In-Situ	In-Situ	In-Situ	In-Situ	In-Situ			
4 - 6 FT										
6 - 8 FT										

Range H - Processing Plan

Processing Plan - Actual Completed												
Range H - Primary Berm												
	L100	L75	L50	L25	CP	R25	R50	R75	R100			
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT	In-Situ		Exc	Exc	Exc	Exc	Exc	Exc	Exc			
4 - 6 FT	In-Situ		Exc	Exc	Exc	Exc	Exc	Exc	Exc			
6 - 8 FT	In-Situ		Exc	Exc	Exc	Exc	In-Situ					
8 - 10 FT	In-S	In-S	Exc	Exc	In-Situ	In-Situ						
10 - 12 FT			In-Situ	In-Situ	In-Situ	In-Situ						
12 - 14 FT			In-Situ	In-Situ	In-Situ	In-Situ						
14 - 16 FT												
Range H - Primary Toe												
	L100	L75	L50	L25	CP	R25	R50	R75	R100			
0 - 2 FT			In-Situ		In-Situ		In-Situ					
2 - 4 FT												
4 - 6 FT												

Range I - Processing Plan

Processing Plan - Actual Completed												
Range I - Primary Berm												
	L100	L75	L50	L25	CP	R25	R50	R75	R100			
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT	Exc	Exc	Exc	Exc	Exc	Exc	In-Situ	In-Situ	In-Situ			
4 - 6 FT	In-Situ		In-Situ		In-Situ	In-Situ		In-Situ				
6 - 8 FT	In-Situ		In-Situ									
8 - 10 FT			In-Situ									
10 - 12 FT			In-Situ									
12 - 14 FT												
Range I - Primary Toe												
	L100	L75	L50	L25	CP	R25	R50	R75	R100			
0 - 2 FT			In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ			
2 - 4 FT			In-Situ	In-Situ	In-Situ				In-Situ			
4 - 6 FT												
Range I - Secondary Berm												
	L100	L75	L50	L25	CP	R25	R50	R75	R100			
0 - 2 FT			Exc	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT				In-Situ	Exc	Exc	Exc	Exc				
4 - 6 FT					In-Situ		In-Situ					
6 - 8 FT					In-Situ							
8 - 10 FT												
Range I - Secondary Toe												
	L100	L75	L50	L25	CP	R25	R50	R75	R100			
0 - 2 FT		In-Situ		In-Situ	In-Situ	In-Situ						
2 - 4 FT				In-Situ	In-Situ	In-Situ						
4 - 6 FT					In-Situ							
6 - 8 FT												

Range J - Processing Plan

Processing Plan - Actual Completed									
Range J - Primary Berm High Portion									
	L75	L50	L25	R25	R50	R75			
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT	In-Situ	Exc	Exc	Exc	Exc	-Situ			
4 - 6 FT	In-Situ				In-Situ				
6 - 8 FT									
8 - 10 FT									
Range J - Primary Berm Low Portion									
	L75	L50	L25	R25	R50	R75			
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc			
2 - 4 FT	In-Situ	Exc	Exc	Exc	Exc	-Situ			
4 - 6 FT									
Range J - Primary Toe									
	L75	L50	L25	R25	R50	R75			
0 - 2 FT		In-Situ	In-Situ	In-Situ					
2 - 4 FT									
4 - 6 FT									

Range K - Processing Plan

Processing Plan - Actual Completed									
Range K - Primary Berm									
	L106+	L100	L75	L50	L25	CP	R25	R50	R75
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
2 - 4 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
4 - 6 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc
6 - 8 FT		Exc	Exc	Exc	Exc	Exc	Exc	Exc	
8 - 10 FT		Exc	Exc	Exc	Exc				
10 - 12 FT		Exc	Exc	Exc	Exc				
12 - 14 FT			Exc	Exc	Exc				
14 - 16 FT			In-S	Exc	Exc				
16 - 18 FT			In-Situ						
18 - 20 FT									
Range K - Primary Toe									
		L100	L75	L50	L25	CP	R25	R50	R75
0 - 2 FT		In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ
2 - 4 FT									
4 - 6 FT									

Range KD - Processing Plan

Processing Plan - Actual Completed									
Range KD - Primary Berm									
	L75	L50	L25	CP	R25	R50	R75		
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc		
2 - 4 FT		Exc	Exc	Exc	Exc	Exc			
4 - 6 FT									
Range KD - Primary Toe									
	L75	L50	L25	R25	R50	R75			
0 - 2 FT									
2 - 4 FT									
4 - 6 FT									

Range N - Processing Plan

Processing Plan - Actual Completed																
Range N - Primary Berm																
	L200	L175	L150	L125	L100	L75	L50	L25	R25	R50	R75	R100	R125	R150	R175	R200
0 - 2 FT	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	
2 - 4 FT						In-Situ						In-Situ				
4 - 6 FT																
Range N - Primary Toe																
	L200	L175	L150	L125	L100	L75	L50	L25	R25	R50	R75	R100	R125	R150	R175	R200
0 - 2 FT					In-Situ											
2 - 4 FT																
4 - 6 FT																

Range O - Processing Plan

Processing Plan - Actual Completed									
Range O - Primary Berm									
	L75	L50	L25	R25	R50				
0 - 2 FT		Exc	Exc	Exc	Exc				
2 - 4 FT		In-Situ							
4 - 6 FT		In-Situ							
6 - 8 FT									
Range O - Primary Toe									
		L50	L25	R25	R50				
0 - 2 FT									
2 - 4 FT									
4 - 6 FT									
Range O - Secondary Berm									
		L50	L25	R25	R50				
0 - 2 FT		Exc	Exc	Exc	Exc				
2 - 4 FT				In-Situ	In-Situ				
4 - 6 FT				In-Situ	In-Situ				
6 - 8 FT				In-Situ	In-Situ				
8 - 10 FT									
Range O - Secondary Toe									
		L50	L25	R25	R50				
0 - 2 FT		In-Situ		In-Situ	In-Situ				
2 - 4 FT		In-Situ			In-Situ				
4 - 6 FT									

Range P - Processing Plan

Processing Plan - Actual Completed												
Range P - Primary Berm												
0 - 2 FT	L125	L100	L75	L50	L25	R25	R50	R75	R100	R125		
	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc		
	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc	Exc		
				In-Situ								
2 - 4 FT												
4 - 6 FT												
6 - 8 FT												
Range P - Primary Toe												
0 - 2 FT	L125	L100	L75	L50	L25	R25	R50	R75	R100	R125		
						In-Situ	In-Situ	In-Situ				
2 - 4 FT												
4 - 6 FT												

APPENDIX B
AIR MONITORING DATA

CENTRAL PROCESSING AREA

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N:

0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND READINGS						AVERAGE READING	
									FOUR	FIVE	SIX	SEVEN	EIGHT	NINE		TEN
1	980305	125145	0	0.019	1.0	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.004	0.005	0.004	0.005
2	980305	125315	0	0.019	1.0	0.009	0.006	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.004	0.005
3	980305	125451	0	0.019	1.0	0.011	0.012	0.013	0.010	0.011	0.010	0.008	0.007	0.007	0.006	0.010
4	980305	125611	0	0.019	1.0	0.013	0.008	0.073	0.084	0.072	0.147	0.104	0.068	0.028	0.017	0.061
5	980305	130244	0	0.019	1.0	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.005	0.005	0.005
6	980305	130414	0	0.019	1.0	0.006	0.006	0.005	0.005	0.005	0.005	0.006	0.006	0.005	0.006	0.006
7	980305	130540	0	0.019	1.0	0.013	0.014	0.015	0.029	0.380	0.184	0.070	0.033	0.028	0.020	0.079
8	980305	130705	0	0.019	1.0	0.015	0.011	0.007	0.007	0.021	0.031	0.020	0.016	0.013	0.012	0.015
9	980305	131222	0	0.019	1.0	0.007	0.008	0.009	0.010	0.009	0.006	0.007	0.007	0.007	0.008	0.008
10	980305	131447	0	0.019	1.0	0.023	0.054	0.083	0.056	0.025	0.009	0.006	0.006	0.006	0.005	0.027
11	980305	131956	0	0.019	1.0	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.005	0.004	0.004	0.004
12	980305	170532	0	0.019	1.0	0.002	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.004

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMIR
PARTICULATE MONITORING

INSTRUMENT S/N:			0			PARTICULATE MONITORING										DATE:		03/10/98	
POINT ID	DATE	TIME	LOCA-TION	BACK-GROUND	K-VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING			
1	980310	73831	0	0.018	1.0	0.032	0.030	0.019	0.013	0.009	0.011	0.011	0.012	0.012	0.010	0.016			
2	980310	74147	0	0.018	1.0	0.024	0.007	0.008	0.007	0.007	0.008	0.007	0.008	0.007	0.007	0.009			
3	980310	74327	0	0.018	1.0	0.009	0.009	0.007	0.008	0.008	0.009	0.008	0.007	0.008	0.007	0.008			
4	980310	83610	0	0.018	1.0	0.008	0.009	0.010	0.007	0.009	0.008	0.006	0.006	0.016	0.009	0.009			
5	980310	83837	0	0.018	1.0	0.006	0.005	0.006	0.006	0.006	0.006	0.004	0.005	0.005	0.004	0.005			
6	980310	84015	0	0.018	1.0	0.005	0.005	0.004	0.005	0.006	0.005	0.004	0.005	0.005	0.004	0.005			
7	980310	102525	0	0.018	1.0	0.009	0.007	0.006	0.007	0.006	0.006	0.009	0.005	0.005	0.008	0.007			
8	980310	102734	0	0.018	1.0	0.007	0.005	0.006	0.005	0.005	0.005	0.006	0.006	0.005	0.005	0.006			
9	980310	102912	0	0.018	1.0	0.005	0.005	0.004	0.005	0.005	0.004	0.005	0.005	0.004	0.005	0.005			
10	980310	150335	0	0.018	1.0	0.009	0.010	0.011	0.013	0.007	0.008	0.020	0.011	0.007	0.006	0.010			
11	980310	150543	0	0.018	1.0	0.010	0.005	0.005	0.004	0.005	0.005	0.005	0.006	0.005	0.005	0.006			
12	980310	150744	0	0.018	1.0	0.006	0.005	0.005	0.005	0.005	0.005	0.006	0.005	0.005	0.005	0.005			

Treatment area

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980312	72855	0	0.028	1.0	0.008	0.006	0.005	0.006	0.005	0.007	0.005	0.004	0.004	0.003	0.005
2	980312	73303	0	0.028	1.0	0.004	0.002	0.003	0.003	0.002	0.003	0.003	0.002	0.003	0.003	0.003
3	980312	85210	0	0.028	1.0	0.007	0.008	0.006	0.004	0.003	0.003	0.004	0.003	0.004	0.003	0.005
4	980312	85427	0	0.028	1.0	0.006	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
5	980312	100633	0	0.028	1.0	0.005	0.005	0.009	0.006	0.011	0.004	0.002	0.004	0.003	0.004	0.005
6	980312	100745	0	0.028	1.0	0.004	0.007	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.003	0.004
7	980312	131455	0	0.028	1.0	0.019	0.017	0.010	0.010	0.013	0.012	0.009	0.007	0.007	0.005	0.011
8	980312	131656	0	0.028	1.0	0.002	0.004	0.003	0.003	0.003	0.002	0.002	0.003	0.003	0.002	0.003
9	980312	145728	0	0.028	1.0	0.009	0.009	0.123	0.394	0.061	0.033	0.069	0.041	0.022	0.013	0.077
10	980312	150105	0	0.028	1.0	0.004	0.002	0.002	0.002	0.001	0.002	0.003	0.002	0.002	0.003	0.002

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980313	72652	0	0.028	1.0	0.008	0.007	0.004	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.005
2	980313	73025	0	0.028	1.0	0.003	0.002	0.002	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.002
3	980313	100353	0	0.028	1.0	0.007	0.006	0.007	0.005	0.004	0.007	0.032	0.022	0.012	0.007	0.011
4	980313	100627	0	0.028	1.0	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.003	0.002
5	980313	130540	0	0.028	1.0	0.004	0.003	0.005	0.003	0.003	0.003	0.003	0.008	0.007	0.009	0.005
6	980313	130736	0	0.028	1.0	0.002	0.003	0.003	0.002	0.002	0.003	0.002	0.003	0.002	0.002	0.002
7	980313	150350	0	0.028	1.0	0.007	0.005	0.006	0.004	0.003	0.005	0.004	0.005	0.006	0.003	0.005
8	980313	150551	0	0.028	1.0	0.006	0.003	0.002	0.003	0.002	0.003	0.003	0.003	0.002	0.002	0.003

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

INSTRUMENT S/N: 0

PARTICULATE MONITORING

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND READINGS						AVERAGE READING			
							TWO	THREE	FOUR	FIVE	SIX	SEVEN		EIGHT	NINE	TEN
1	980317	73722	0	0.029	1.0	0.008	0.007	0.006	0.007	0.007	0.006	0.007	0.006	0.006	0.007	0.007
2	980317	74206	0	0.029	1.0	0.007	0.006	0.006	0.007	0.006	0.006	0.007	0.006	0.007	0.007	0.007
3	980317	93301	0	0.029	1.0	0.006	0.005	0.005	0.004	0.005	0.003	0.005	0.004	0.005	0.005	0.005
4	980317	93614	0	0.029	1.0	0.007	0.006	0.008	0.007	0.007	0.006	0.005	0.005	0.008	0.018	0.008
5	980317	135156	0	0.029	1.0	0.005	0.003	0.005	0.004	0.003	0.003	0.003	0.004	0.004	0.003	0.004
6	980317	135915	0	0.029	1.0	0.003	0.004	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
7	980317	160918	0	0.029	1.0	0.010	0.006	0.008	0.006	0.005	0.006	0.005	0.006	0.007	0.008	0.007
8	980317	161040	0	0.029	1.0	0.066	0.064	0.068	0.061	0.063	0.070	0.070	0.073	0.049	0.027	0.061
9	980317	161156	0	0.029	1.0	0.010	0.010	0.022	0.022	0.023	0.012	0.006	0.005	0.004	0.004	0.012
10	980317	161309	0	0.029	1.0	0.004	0.004	0.003	0.003	0.004	0.003	0.004	0.003	0.031	0.023	0.008
11	980317	161424	0	0.029	1.0	0.005	0.004	0.006	0.005	0.005	0.006	0.005	0.004	0.004	0.004	0.005
12	980317	161626	0	0.029	1.0	0.005	0.005	0.005	0.005	0.005	0.004	0.003	0.003	0.004	0.004	0.004
13	980317	161740	0	0.029	1.0	0.007	0.008	0.025	0.030	0.019	0.011	0.036	0.037	0.028	0.020	0.022
14	980317	161850	0	0.029	1.0	0.036	0.037	0.024	0.013	0.012	0.017	0.012	0.006	0.006	0.006	0.017
15	980317	162323	0	0.029	1.0	0.022	0.022	0.024	0.054	0.110	0.062	0.024	0.033	0.056	0.087	0.049

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT
ID

DATE

TIME

LOCA-
TIONBACK-
GROUNDK-
VAL

ONE

TWO

THREE

SIX SECOND

FOUR

FIVE

READINGS

SIX

SEVEN

EIGHT

NINE

TEN

AVERAGE
READING

1

980318

72416

0

0.028

1.0

0.009

0.006

0.005

0.006

0.005

0.004

0.005

0.005

0.004

0.005

0.005

2

980318

72808

0

0.028

1.0

0.007

0.005

0.005

0.005

0.005

0.005

0.006

0.006

0.005

0.004

0.005

3

980318

94112

0

0.028

1.0

0.005

0.045

0.018

0.016

0.017

0.015

0.014

0.011

0.009

0.024

0.026

4

980318

94220

0

0.028

1.0

0.041

0.026

0.025

0.035

0.032

0.015

0.019

0.047

0.030

0.036

0.031

5

980318

94445

0

0.028

1.0

0.006

0.006

0.005

0.005

0.005

0.006

0.005

0.005

0.005

0.006

0.005

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980323	72300	0	0.028	1.0	0.005	0.003	0.004	0.003	0.003	0.003	0.001	0.008	0.003	0.003	0.004
2	980323	72642	0	0.028	1.0	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.003	0.002
3	980323	94835	0	0.028	1.0	0.011	0.038	0.024	0.009	0.004	0.003	0.004	0.003	0.003	0.003	0.010
4	980323	95538	0	0.028	1.0	0.007	0.003	0.002	0.003	0.002	0.004	0.003	0.002	0.003	0.002	0.003
5	980323	123916	0	0.028	1.0	0.004	0.004	0.003	0.004	0.007	0.005	0.006	0.005	0.005	0.005	0.005
6	980323	124019	0	0.028	1.0	0.005	0.005	0.005	0.004	0.007	0.005	0.007	0.006	0.008	0.006	0.006
7	980323	153418	0	0.028	1.0	0.005	0.006	0.006	0.006	0.007	0.006	0.006	0.006	0.006	0.007	0.006
8	980323	153732	0	0.028	1.0	0.009	0.012	0.012	0.014	0.012	0.014	0.011	0.017	0.018	0.016	0.014

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980325	72839	0	0.027	1.0	0.005	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.005
2	980325	73318	0	0.027	1.0	0.004	0.005	0.004	0.004	0.005	0.005	0.004	0.005	0.005	0.004	0.005
3	980325	93906	0	0.027	1.0	0.004	0.004	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004
4	980325	94009	0	0.027	1.0	0.004	0.003	0.005	0.003	0.004	0.004	0.004	0.002	0.005	0.004	0.004
5	980325	134139	0	0.027	1.0	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.006	0.010	0.004
6	980325	134408	0	0.027	1.0	0.002	0.002	0.002	0.003	0.002	0.003	0.002	0.003	0.003	0.002	0.002
7	980325	152303	0	0.027	1.0	0.010	0.017	0.016	0.017	0.018	0.014	0.021	0.015	0.022	0.034	0.018
8	980325	152409	0	0.027	1.0	0.026	0.020	0.022	0.013	0.014	0.013	0.015	0.016	0.014	0.016	0.017

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INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND READINGS						AVERAGE READING			
							TWO	THREE	FOUR	FIVE	SIX	SEVEN		EIGHT	NINE	TEN
1	980326	72317	0	0.027	1.0	0.011	0.012	0.011	0.010	0.011	0.011	0.013	0.011	0.011	0.011	0.011
2	980326	72605	0	0.027	1.0	0.006	0.005	0.004	0.005	0.005	0.005	0.004	0.005	0.004	0.005	0.005
3	980326	92928	0	0.027	1.0	0.048	0.007	0.007	0.056	0.069	0.013	0.008	0.009	0.009	0.007	0.023
4	980326	93036	0	0.027	1.0	0.043	0.009	0.048	0.039	0.024	0.022	0.019	0.015	0.013	0.018	0.025
5	980326	110922	0	0.027	1.0	0.043	0.014	0.016	0.031	0.031	0.016	0.033	0.011	0.011	0.012	0.022
6	980326	111145	0	0.027	1.0	0.007	0.008	0.005	0.006	0.006	0.007	0.006	0.006	0.006	0.006	0.006

SEVENSON ENVIRONMENTAL SERVICES

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PARTICULATE MONITORING

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	READINGS						TEN	AVERAGE READING
									SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE		
1	980331	73339	0	0.027	1.0	0.019	0.020	0.020	0.020	0.018	0.015	0.014	0.015	0.019	0.019	0.018
2	980331	73724	0	0.027	1.0	0.012	0.012	0.011	0.011	0.010	0.011	0.010	0.010	0.011	0.010	0.011
3	980331	92336	0	0.027	1.0	0.021	0.025	0.026	0.026	0.021	0.026	0.022	0.021	0.021	0.020	0.023
4	980331	123723	0	0.027	1.0	0.025	0.020	0.023	0.023	0.025	0.021	0.018	0.018	0.019	0.021	0.022
5	980331	123943	0	0.027	1.0	0.026	0.049	0.087	0.043	0.028	0.026	0.026	0.037	0.036	0.029	0.039
6	980331	154155	0	0.027	1.0	0.020	0.029	0.030	0.025	0.022	0.022	0.024	0.027	0.026	0.021	0.025
7	980331	154447	0	0.027	1.0	0.015	0.012	0.011	0.009	0.010	0.010	0.010	0.011	0.009	0.009	0.011

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

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INSTRUMENT S/N:

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POINT

ID

DATE

TIME

LOC- TION

BACK- GROUND

K- VAL

ONE

TWO

THREE

FOUR

FIVE

SIX

SEVEN

EIGHT

NINE

TEN

AVERAGE

READING

1	980403	100811	0	0.027	1.0	0.004	0.003	0.004	0.003	0.003	0.003	0.004	0.004	0.004
2	980403	101112	0	0.027	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
3	980403	123759	0	0.027	1.0	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
4	980403	123915	0	0.027	1.0	0.004	0.004	0.004	0.004	0.045	0.004	0.004	0.006	0.008

SEVENSON ENVIRONMENTAL SERVICES

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PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980404	73248	0	0.027	1.0	0.003	0.003	0.004	0.004	0.003	0.003	0.002	0.003	0.004	0.003	0.003
2	980404	73739	0	0.027	1.0	0.004	0.007	0.008	0.013	0.010	0.009	0.007	0.006	0.004	0.005	0.007
3	980404	111714	0	0.027	1.0	0.004	0.005	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
4	980404	111817	0	0.027	1.0	0.004	0.004	0.003	0.002	0.003	0.004	0.004	0.002	0.003	0.004	0.003
5	980404	124923	0	0.027	1.0	0.002	0.004	0.002	0.003	0.002	0.002	0.007	0.003	0.003	0.001	0.003
6	980404	125049	0	0.027	1.0	0.003	0.004	0.002	0.002	0.001	0.002	0.004	0.002	0.006	0.012	0.004

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	READINGS SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980406	62646	0	0.027	1.0	0.007	0.009	0.010	0.009	0.012	0.013	0.005	0.005	0.006	0.007	0.008
2	980406	63113	0	0.027	1.0	0.004	0.005	0.004	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.003
3	980406	83745	0	0.027	1.0	0.004	0.004	0.003	0.004	0.004	0.003	0.009	0.005	0.006	0.003	0.005
4	980406	83901	0	0.027	1.0	0.003	0.002	0.003	0.002	0.003	0.002	0.002	0.003	0.003	0.002	0.003

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980408	64042	0	0.027	1.0	0.002	0.003	0.003	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002
2	980408	64528	0	0.027	1.0	0.005	0.007	0.006	0.005	0.002	0.004	0.005	0.003	0.003	0.003	0.005
3	980408	90333	0	0.027	1.0	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.002	0.003	0.002	0.003
4	980408	90506	0	0.027	1.0	0.004	0.003	0.002	0.003	0.002	0.002	0.002	0.003	0.002	0.002	0.003
5	980408	113552	0	0.027	1.0	0.006	0.004	0.002	0.007	0.013	0.011	0.013	0.009	0.043	0.016	0.012
6	980408	113703	0	0.027	1.0	0.002	0.005	0.003	0.004	0.004	0.002	0.003	0.003	0.002	0.002	0.003
7	980408	152856	0	0.027	1.0	0.015	0.024	0.025	0.027	0.029	0.035	0.026	0.030	0.030	0.030	0.027
8	980408	153124	0	0.027	1.0	0.007	0.003	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.003	0.003

SEVENSON ENVIRONMENTAL SERVICES

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND READINGS						TEN	AVERAGE READING	
							TWO	THREE	FOUR	FIVE	SIX	SEVEN			EIGHT
1	980409	63220	0	0.027	1.0	0.004	0.005	0.006	0.003	0.005	0.004	0.004	0.005	0.006	0.005
2	980409	63601	0	0.027	1.0	0.004	0.004	0.003	0.004	0.007	0.015	0.017	0.016	0.014	0.010
3	980409	92904	0	0.027	1.0	0.010	0.007	0.006	0.004	0.004	0.004	0.004	0.003	0.004	0.005
4	980409	93031	0	0.027	1.0	0.004	0.005	0.004	0.004	0.003	0.003	0.002	0.005	0.003	0.004
5	980409	121823	0	0.027	1.0	0.005	0.005	0.012	0.005	0.004	0.004	0.003	0.004	0.005	0.005
6	980409	121930	0	0.027	1.0	0.005	0.006	0.005	0.006	0.004	0.004	0.004	0.004	0.004	0.005
7	980409	140034	0	0.027	1.0	0.005	0.005	0.008	0.006	0.017	0.021	0.010	0.005	0.004	0.009
8	980409	140138	0	0.027	1.0	0.011	0.008	0.005	0.004	0.003	0.003	0.003	0.004	0.002	0.004

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980414	94312	0	0.027	1.0	0.003	0.004	0.003	0.010	0.007	0.004	0.004	0.004	0.003	0.004	0.005
2	980414	94609	0	0.027	1.0	0.004	0.003	0.004	0.005	0.004	0.007	0.005	0.008	0.008	0.005	0.005
3	980414	123232	0	0.027	1.0	0.011	0.006	0.003	0.003	0.004	0.004	0.003	0.004	0.003	0.004	0.005
4	980414	123348	0	0.027	1.0	0.004	0.007	0.005	0.005	0.003	0.003	0.008	0.004	0.004	0.003	0.005
5	980414	161640	0	0.027	1.0	0.007	0.007	0.005	0.004	0.004	0.003	0.004	0.004	0.003	0.003	0.004
6	980414	162014	0	0.027	1.0	0.003	0.005	0.008	0.016	0.003	0.004	0.003	0.005	0.004	0.003	0.005

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POINT	ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980418	71653		0	0.027	1.0	0.009	0.007	0.009	0.007	0.006	0.006	0.007	0.006	0.005	0.006	0.007
2	980418	72126		0	0.027	1.0	0.006	0.008	0.008	0.006	0.007	0.008	0.011	0.013	0.011	0.008	0.009
3	980418	103716		0	0.027	1.0	0.011	0.006	0.005	0.005	0.005	0.007	0.007	0.007	0.005	0.005	0.006
4	980418	103819		0	0.027	1.0	0.006	0.010	0.008	0.005	0.005	0.006	0.006	0.004	0.008	0.008	0.007
5	980418	122859		0	0.027	1.0	0.006	0.004	0.005	0.005	0.005	0.005	0.008	0.008	0.007	0.008	0.006
6	980418	123003		0	0.027	1.0	0.008	0.006	0.005	0.006	0.005	0.006	0.007	0.005	0.005	0.005	0.006

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980421	73219	0	0.027	1.0	0.007	0.006	0.005	0.004	0.005	0.006	0.007	0.008	0.007	0.009	0.006
2	980421	73804	0	0.027	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.003	0.003
3	980421	101413	0	0.027	1.0	0.012	0.009	0.009	0.011	0.015	0.016	0.009	0.006	0.005	0.006	0.010
4	980421	101517	0	0.027	1.0	0.006	0.008	0.005	0.008	0.012	0.014	0.008	0.007	0.005	0.006	0.008
5	980421	123247	0	0.027	1.0	0.005	0.005	0.005	0.003	0.005	0.004	0.003	0.004	0.004	0.003	0.004
6	980421	123349	0	0.027	1.0	0.004	0.004	0.003	0.005	0.005	0.004	0.005	0.004	0.004	0.005	0.004

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INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND			READINGS			NINE	TEN	AVERAGE READING	
						TWO	THREE	FOUR	FIVE	SIX	SEVEN				EIGHT
1	980422	72121	0	0.027	1.0	0.014	0.013	0.010	0.008	0.009	0.007	0.007	0.007	0.007	0.009
2	980422	72600	0	0.027	1.0	0.007	0.007	0.009	0.007	0.008	0.007	0.008	0.007	0.006	0.007
3	980422	94619	0	0.027	1.0	0.007	0.005	0.005	0.007	0.007	0.005	0.006	0.007	0.005	0.006
4	980422	94730	0	0.027	1.0	0.005	0.006	0.006	0.005	0.005	0.010	0.007	0.006	0.006	0.007
5	980422	123436	0	0.027	1.0	0.006	0.005	0.005	0.008	0.007	0.007	0.007	0.006	0.006	0.006
6	980422	123546	0	0.027	1.0	0.005	0.004	0.005	0.005	0.010	0.006	0.007	0.007	0.009	0.007
7	980422	144614	0	0.027	1.0	0.007	0.005	0.005	0.004	0.004	0.005	0.005	0.004	0.004	0.005
8	980422	144719	0	0.027	1.0	0.004	0.004	0.004	0.004	0.005	0.004	0.004	0.004	0.004	0.004

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980428	92546	0	0.027	1.0	0.004	0.004	0.003	0.013	0.006	0.003	0.002	0.002	0.002	0.003	0.004
2	980428	92713	0	0.027	1.0	0.002	0.002	0.002	0.002	0.002	0.004	0.004	0.006	0.004	0.007	0.004
3	980428	123553	0	0.027	1.0	0.005	0.003	0.003	0.003	0.008	0.008	0.005	0.002	0.002	0.002	0.004
4	980428	123656	0	0.027	1.0	0.003	0.008	0.011	0.280	0.144	0.012	0.004	0.003	0.002	0.002	0.047
5	980428	161415	0	0.027	1.0	0.003	0.003	0.002	0.003	0.002	0.002	0.003	0.002	0.004	0.002	0.003
6	980428	161840	0	0.027	1.0	0.003	0.002	0.005	0.009	0.004	0.004	0.005	0.006	0.005	0.004	0.005

SEVENSON ENVIRONMENTAL SERVICES

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980429	72012	0	0.027	1.0	0.007	0.013	0.006	0.005	0.004	0.005	0.005	0.003	0.003	0.004	0.006
2	980429	72343	0	0.027	1.0	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.005	0.003
3	980429	93042	0	0.027	1.0	0.012	0.011	0.008	0.006	0.008	0.009	0.008	0.010	0.014	0.018	0.010
4	980429	93148	0	0.027	1.0	0.017	0.018	0.033	0.050	0.050	0.023	0.011	0.014	0.015	0.015	0.025
5	980429	123514	0	0.027	1.0	0.080	0.031	0.307	0.314	0.119	0.066	0.026	0.037	0.008	0.043	0.103
6	980429	123623	0	0.027	1.0	0.071	0.202	0.150	0.066	0.014	0.008	0.010	0.013	0.013	0.015	0.056
7	980429	150916	0	0.027	1.0	0.011	0.011	0.009	0.006	0.006	0.018	0.014	0.088	0.019	0.012	0.019
8	980429	151133	0	0.027	1.0	0.008	0.006	0.003	0.006	0.004	0.003	0.003	0.004	0.003	0.003	0.004

SEVENSON ENVIRONMENTAL SERVICES

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980430	72338	0	0.027	1.0	0.008	0.010	0.010	0.010	0.008	0.010	0.012	0.011	0.011	0.015	0.011
2	980430	72743	0	0.027	1.0	0.007	0.008	0.008	0.008	0.008	0.007	0.007	0.008	0.008	0.007	0.008
3	980430	100158	0	0.027	1.0	0.014	0.018	0.019	0.013	0.032	0.014	0.011	0.012	0.014	0.016	0.016
4	980430	100303	0	0.027	1.0	0.018	0.012	0.012	0.012	0.010	0.011	0.022	0.028	0.020	0.015	0.016
5	980430	123245	0	0.027	1.0	0.012	0.011	0.011	0.011	0.014	0.011	0.011	0.012	0.011	0.012	0.012
6	980430	123348	0	0.027	1.0	0.014	0.011	0.011	0.011	0.011	0.011	0.010	0.011	0.011	0.012	0.011
7	980430	145416	0	0.027	1.0	0.011	0.010	0.010	0.011	0.011	0.011	0.012	0.011	0.010	0.012	0.011
8	980430	145527	0	0.027	1.0	0.012	0.010	0.010	0.009	0.012	0.011	0.014	0.014	0.012	0.011	0.012
9	980430	162945	0	0.027	1.0	0.012	0.014	0.019	0.020	0.021	0.017	0.017	0.015	0.015	0.014	0.016
10	980430	163050	0	0.027	1.0	0.011	0.013	0.014	0.016	0.014	0.016	0.016	0.015	0.014	0.018	0.015

SEVENSON ENVIRONMENTAL SERVICES
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INSTRUMENT S/N:			0			PARTICULATE MONITORING										DATE: 06/16/98		AVERAGE READING
POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN			
1	980508	72300	0	0.027	1.0	0.004	0.004	0.002	0.002	0.002	0.001	0.003	0.001	0.002	0.001	0.001	0.002	
2	980508	72741	0	0.027	1.0	0.005	0.002	0.001	0.002	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.002	
3	980508	90227	0	0.027	1.0	0.004	0.004	0.008	0.002	0.002	0.002	0.006	0.004	0.002	0.002	0.002	0.004	
4	980508	90336	0	0.027	1.0	0.002	0.002	0.002	0.002	0.003	0.001	0.003	0.001	0.002	0.002	0.002	0.002	
5	980508	110433	0	0.027	1.0	0.005	0.007	0.004	0.007	0.004	0.005	0.032	0.004	0.004	0.004	0.004	0.008	
6	980508	110541	0	0.027	1.0	0.003	0.004	0.003	0.006	0.003	0.004	0.003	0.003	0.003	0.002	0.002	0.003	
7	980508	133238	0	0.027	1.0	0.038	0.005	0.005	0.005	0.004	0.006	0.004	0.004	0.004	0.004	0.004	0.008	
8	980508	133348	0	0.027	1.0	0.004	0.004	0.004	0.004	0.005	0.003	0.004	0.005	0.004	0.004	0.004	0.004	

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980513	71340	0	0.027	1.0	0.006	0.007	0.005	0.006	0.007	0.008	0.014	0.010	0.014	0.008	0.009
2	980513	71658	0	0.027	1.0	0.010	0.006	0.007	0.007	0.008	0.009	0.007	0.006	0.006	0.008	0.007
3	980513	95222	0	0.027	1.0	0.009	0.007	0.007	0.006	0.006	0.006	0.007	0.017	0.007	0.005	0.008
4	980513	95328	0	0.027	1.0	0.005	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.006	0.004	0.005
5	980513	112605	0	0.027	1.0	0.006	0.009	0.008	0.006	0.006	0.005	0.006	0.005	0.005	0.005	0.006
6	980513	112740	0	0.027	1.0	0.007	0.006	0.006	0.005	0.006	0.005	0.005	0.004	0.006	0.009	0.006
7	980513	155030	0	0.027	1.0	0.007	0.007	0.006	0.005	0.007	0.005	0.005	0.006	0.012	0.014	0.007
8	980513	155445	0	0.027	1.0	0.006	0.006	0.008	0.006	0.006	0.007	0.007	0.009	0.010	0.012	0.008

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980514	72455	0	0.027	1.0	0.006	0.006	0.005	0.005	0.005	0.005	0.006	0.004	0.005	0.005	0.005
2	980514	72838	0	0.027	1.0	0.008	0.009	0.007	0.006	0.008	0.006	0.007	0.009	0.008	0.006	0.007
3	980514	93609	0	0.027	1.0	0.012	0.011	0.009	0.009	0.009	0.010	0.009	0.009	0.011	0.011	0.010
4	980514	93712	0	0.027	1.0	0.008	0.013	0.011	0.012	0.009	0.008	0.007	0.005	0.007	0.006	0.009
5	980514	141909	0	0.027	1.0	0.013	0.012	0.012	0.009	0.009	0.015	0.011	0.012	0.011	0.007	0.011
6	980514	142012	0	0.027	1.0	0.006	0.011	0.012	0.009	0.010	0.013	0.010	0.007	0.008	0.008	0.009
7	980514	154338	0	0.027	1.0	0.006	0.006	0.005	0.014	0.011	0.010	0.017	0.018	0.008	0.005	0.010
8	980514	154714	0	0.027	1.0	0.010	0.010	0.011	0.009	0.008	0.010	0.009	0.008	0.007	0.007	0.009

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980515	71926	0	0.027	1.0	0.012	0.029	0.020	0.015	0.009	0.008	0.014	0.008	0.012	0.012	0.014
2	980515	72237	0	0.027	1.0	0.007	0.008	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.004
3	980515	90453	0	0.027	1.0	0.012	0.018	0.016	0.017	0.020	0.028	0.026	0.028	0.012	0.009	0.019
4	980515	90602	0	0.027	1.0	0.011	0.007	0.008	0.015	0.021	0.014	0.022	0.017	0.019	0.012	0.015
5	980515	134728	0	0.027	1.0	0.013	0.010	0.011	0.011	0.010	0.010	0.011	0.010	0.008	0.009	0.010
6	980515	134940	0	0.027	1.0	0.007	0.008	0.009	0.012	0.021	0.016	0.013	0.008	0.007	0.009	0.011
7	980515	153525	0	0.027	1.0	0.012	0.008	0.006	0.010	0.012	0.012	0.013	0.015	0.012	0.010	0.011
8	980515	153941	0	0.027	1.0	0.009	0.008	0.010	0.008	0.006	0.006	0.006	0.005	0.006	0.004	0.007

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND READINGS						TEN	AVERAGE READING		
							TWO	THREE	FOUR	FIVE	SIX	SEVEN			EIGHT	NINE
1	980516	71915	0	0.027	1.0	0.011	0.014	0.009	0.009	0.010	0.014	0.011	0.013	0.011	0.011	0.011
2	980516	72338	0	0.027	1.0	0.009	0.007	0.006	0.008	0.008	0.006	0.006	0.006	0.007	0.007	0.007
3	980516	94318	0	0.027	1.0	0.023	0.030	0.016	0.018	0.017	0.016	0.015	0.014	0.017	0.016	0.018
4	980516	94424	0	0.027	1.0	0.014	0.013	0.016	0.014	0.015	0.015	0.014	0.014	0.017	0.016	0.015
5	980516	115805	0	0.027	1.0	0.016	0.017	0.011	0.012	0.009	0.010	0.009	0.009	0.008	0.009	0.011
6	980516	115913	0	0.027	1.0	0.011	0.011	0.010	0.009	0.012	0.012	0.013	0.015	0.020	0.032	0.015
7	980516	142652	0	0.027	1.0	0.013	0.016	0.020	0.022	0.024	0.025	0.023	0.020	0.023	0.031	0.022
8	980516	143026	0	0.027	1.0	0.012	0.012	0.014	0.009	0.007	0.018	0.049	0.029	0.012	0.009	0.017

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	READINGS SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980518	71113	0	0.027	1.0	0.017	0.022	0.015	0.014	0.009	0.011	0.009	0.010	0.011	0.011	0.013
2	980518	71414	0	0.027	1.0	0.008	0.008	0.009	0.009	0.009	0.008	0.009	0.008	0.010	0.010	0.009
3	980518	102324	0	0.027	1.0	0.014	0.012	0.011	0.012	0.012	0.011	0.018	0.013	0.012	0.012	0.013
4	980518	102427	0	0.027	1.0	0.014	0.014	0.014	0.015	0.024	0.017	0.015	0.012	0.012	0.013	0.015
5	980518	133632	0	0.027	1.0	0.020	0.017	0.019	0.022	0.023	0.018	0.021	0.017	0.014	0.019	0.019
6	980518	133741	0	0.027	1.0	0.016	0.015	0.014	0.014	0.034	0.036	0.037	0.031	0.027	0.032	0.026
7	980518	154015	0	0.027	1.0	0.019	0.021	0.025	0.021	0.020	0.018	0.023	0.037	0.035	0.021	0.024
8	980518	154337	0	0.027	1.0	0.014	0.011	0.013	0.036	0.019	0.010	0.008	0.010	0.010	0.009	0.014

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980520	72901	0	0.028	1.0	0.010	0.010	0.010	0.009	0.011	0.009	0.007	0.011	0.006	0.005	0.009
2	980520	73322	0	0.028	1.0	0.003	0.005	0.004	0.003	0.002	0.002	0.001	0.002	0.002	0.003	0.003
3	980520	91914	0	0.028	1.0	0.007	0.006	0.010	0.013	0.042	0.040	0.010	0.005	0.026	0.035	0.019
4	980520	92159	0	0.028	1.0	0.006	0.007	0.012	0.007	0.005	0.011	0.008	0.010	0.008	0.004	0.008
5	980520	111236	0	0.028	1.0	0.010	0.010	0.009	0.015	0.015	0.009	0.010	0.008	0.008	0.008	0.010
6	980520	111351	0	0.028	1.0	0.018	0.007	0.005	0.010	0.008	0.006	0.009	0.011	0.011	0.008	0.009
7	980520	123647	0	0.028	1.0	0.003	0.003	0.004	0.004	0.003	0.008	0.004	0.004	0.005	0.005	0.004
8	980520	123821	0	0.028	1.0	0.002	0.003	0.022	0.025	0.011	0.018	0.010	0.005	0.003	0.003	0.010
9	980520	152909	0	0.028	1.0	0.012	0.011	0.006	0.003	0.011	0.192	0.099	0.481	0.150	0.056	0.102
10	980520	153315	0	0.028	1.0	0.008	0.002	0.010	0.031	0.002	0.002	-0.000	0.003	0.001	0.002	0.006

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POINT	ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980521	71051		0	0.028	1.0	0.014	0.018	0.025	0.013	0.009	0.017	0.009	0.013	0.011	0.019	0.015
2	980521	71154		0	0.028	1.0	0.021	0.017	0.011	0.013	0.011	0.010	0.008	0.009	0.007	0.009	0.012
3	980521	94205		0	0.028	1.0	0.015	0.027	0.025	0.029	0.029	0.019	0.014	0.021	0.033	0.082	0.029
4	980521	94329		0	0.028	1.0	0.024	0.013	0.012	0.011	0.009	0.011	0.015	0.023	0.020	0.018	0.016
5	980521	123331		0	0.028	1.0	0.010	0.010	0.010	0.010	0.021	0.013	0.060	0.071	0.043	0.014	0.026
6	980521	123438		0	0.028	1.0	0.007	0.009	0.008	0.009	0.011	0.034	0.010	0.008	0.006	0.008	0.011

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	READINGS SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980528	72637	0	0.028	1.0	0.051	0.028	0.026	0.023	0.026	0.027	0.028	0.029	0.022	0.021	0.028
2	980528	73059	0	0.028	1.0	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.031	0.046	0.031	0.024
3	980528	95959	0	0.028	1.0	0.029	0.022	0.018	0.016	0.015	0.015	0.016	0.021	0.021	0.017	0.019
4	980528	100104	0	0.028	1.0	0.015	0.018	0.016	0.016	0.018	0.019	0.018	0.016	0.016	0.017	0.017
5	980528	123609	0	0.028	1.0	0.011	0.011	0.013	0.011	0.010	0.021	0.027	0.041	0.025	0.020	0.019
6	980528	123718	0	0.028	1.0	0.261	0.043	0.036	0.033	0.022	0.018	0.017	0.013	0.015	0.022	0.048
7	980528	145143	0	0.028	1.0	0.010	0.011	0.014	0.013	0.013	0.017	0.012	0.012	0.020	0.012	0.013
8	980528	145545	0	0.028	1.0	0.066	0.062	0.024	0.019	0.019	0.083	0.032	0.022	0.014	0.017	0.036

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND READINGS						AVERAGE READING			
							TWO	THREE	FOUR	FIVE	SIX	SEVEN		EIGHT	NINE	TEN
1	980602	72937	0	0.010	1.0	0.005	0.008	0.010	0.003	0.004	0.006	0.003	0.004	0.003	0.004	0.005
2	980602	73336	0	0.010	1.0	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.005	0.003	0.003	0.003
3	980602	92906	0	0.010	1.0	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
4	980602	93009	0	0.010	1.0	0.005	0.015	0.005	0.004	0.005	0.003	0.004	0.004	0.004	0.005	0.005
5	980602	123700	0	0.010	1.0	0.005	0.006	0.012	0.014	0.005	0.006	0.012	0.058	0.041	0.030	0.019
6	980602	123807	0	0.010	1.0	0.015	0.005	0.006	0.012	0.012	0.014	0.011	0.014	0.009	0.016	0.011
7	980602	152905	0	0.010	1.0	0.015	0.009	0.009	0.008	0.009	0.011	0.013	0.014	0.008	0.009	0.011
8	980602	153422	0	0.010	1.0	0.009	0.019	0.013	0.026	0.011	0.021	0.011	0.004	0.028	0.054	0.020

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1	980604	71741	0	0.028	1.0	0.004	0.002	0.002	0.002	0.004	0.002	-0.000	0.002	0.002	0.002	0.002
2	980604	72107	0	0.028	1.0	0.004	0.001	0.002	0.001	0.002	0.002	0.003	0.003	0.002	0.001	0.002
3	980604	94536	0	0.028	1.0	0.008	0.005	0.005	0.007	0.007	0.015	0.009	0.010	0.003	0.002	0.007
4	980604	94656	0	0.028	1.0	0.014	0.008	0.009	0.006	0.005	0.003	0.002	0.004	0.006	0.007	0.006
5	980604	145025	0	0.028	1.0	0.006	0.006	0.009	0.004	0.005	0.004	0.010	0.006	0.003	0.003	0.006
6	980604	145138	0	0.028	1.0	0.001	0.010	0.056	0.121	0.016	0.005	0.003	0.003	0.003	0.002	0.022

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POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980605	75849	0	0.028	1.0	0.023	0.037	0.014	0.011	0.006	0.006	0.002	0.002	0.006	0.018	0.013
2	980605	80127	0	0.028	1.0	0.001	0.006	0.010	0.005	0.002	0.001	0.002	0.002	0.002	0.044	0.008
3	980605	104358	0	0.028	1.0	0.010	0.045	0.015	0.030	0.021	0.023	0.003	0.003	0.002	0.003	0.016
4	980605	104501	0	0.028	1.0	0.001	-0.000	0.002	0.006	0.008	0.004	0.005	0.007	0.050	0.009	0.009
5	980605	130308	0	0.028	1.0	0.010	0.002	0.005	0.025	0.072	0.030	0.023	0.157	0.021	0.046	0.039
6	980605	130420	0	0.028	1.0	0.053	0.062	0.131	0.050	0.029	0.047	0.053	0.164	0.229	0.132	0.095
7	980605	154635	0	0.028	1.0	0.017	0.014	0.006	0.002	-0.000	0.001	-0.000	0.002	0.001	0.004	0.005
8	980605	154901	0	0.028	1.0	0.029	0.011	0.005	0.005	0.006	0.013	0.006	0.026	0.003	-0.000	0.010

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0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980609	72104	0	0.028	1.0	0.002	0.001	0.001	0.001	0.001	0.002	0.009	0.015	0.007	0.003	0.004
2	980609	72527	0	0.028	1.0	0.006	0.003	0.002	-0.000	0.001	-0.000	0.001	0.001	0.006	0.001	0.002
3	980609	93555	0	0.028	1.0	0.004	0.003	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.001	0.002
4	980609	93702	0	0.028	1.0	0.010	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.002
5	980609	123755	0	0.028	1.0	0.003	0.003	0.003	0.004	0.002	0.003	0.001	0.001	0.003	0.001	0.002
6	980609	123859	0	0.028	1.0	0.001	0.002	-0.000	0.001	-0.000	0.001	0.001	-0.000	0.001	0.001	0.001
7	980609	152452	0	0.028	1.0	0.019	0.014	0.016	0.015	0.012	0.008	0.005	0.004	0.003	0.004	0.010
8	980609	152941	0	0.028	1.0	0.021	0.011	0.003	0.001	0.001	0.016	0.007	0.004	0.004	0.004	0.007

BACKGROUND AND INDIVIDUAL RANGES

SEVENSON ENVIRONMENTAL SERVICES
CAPE CODE - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980227	91928	0	0.018	1.0	0.016	0.006	0.006	0.006	0.008	0.006	0.005	0.005	0.006	0.005	0.007
2	980227	92257	0	0.018	1.0	0.012	0.009	0.009	0.010	0.010	0.011	0.012	0.010	0.011	0.011	0.011
3	980227	92445	0	0.018	1.0	0.014	0.011	0.008	0.006	0.007	0.006	0.005	0.006	0.005	0.006	0.007
4	980227	93020	0	0.018	1.0	0.008	0.007	0.006	0.007	0.007	0.011	0.012	0.011	0.011	0.006	0.009

Background data.

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 521366

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980304	83020	0	0.011	1.0	0.011	0.006	0.004	0.005	0.005	0.005	0.004	0.005	0.005	0.004	0.005
2	980304	85730	0	0.011	1.0	0.007	0.012	0.010	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.007
3	980304	94015	0	0.011	1.0	0.006	0.004	0.004	0.004	0.005	0.015	0.017	0.010	0.018	0.017	0.010
4	980304	100059	0	0.011	1.0	0.006	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.009	0.006	0.005
5	980304	103009	0	0.011	1.0	0.006	0.010	0.005	0.003	0.004	0.004	0.004	0.003	0.004	0.003	0.005

Range G

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 521366

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980305	75349	0	0.011	1.0	0.007	0.005	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
2	980305	83901	0	0.011	1.0	0.008	0.009	0.006	0.006	0.006	0.006	0.005	0.006	0.014	0.012	0.008
3	980305	93904	0	0.011	1.0	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.003
4	980305	105416	0	0.011	1.0	0.002	0.003	0.002	0.003	0.002	0.003	0.004	0.003	0.003	0.003	0.003

Range C

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 521366

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980306	80028	0	0.011	1.0	0.025	0.004	0.004	0.004	0.006	0.004	0.004	0.004	0.004	0.005	0.006
2	980306	80214	0	0.011	1.0	0.004	0.004	0.005	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.004
3	980306	80350	0	0.011	1.0	0.016	0.010	0.023	0.005	0.004	0.004	0.004	0.004	0.005	0.004	0.008
4	980306	80602	0	0.011	1.0	0.047	0.036	0.034	0.032	0.035	0.047	0.020	0.015	0.012	0.010	0.029
5	980306	81842	0	0.011	1.0	0.006	0.004	0.004	0.003	0.003	0.004	0.006	0.003	0.004	0.003	0.004

Range H

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 521366			PARTICULATE MONITORING										DATE: 03/10/98			
POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND			READINGS			DATE		AVERAGE READING	
							TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE		TEN
1	980310	75952	0	0.011	1.0	0.027	0.014	0.014	0.005	0.004	0.006	0.005	0.009	0.006	0.005	0.010
2	980310	80519	0	0.011	1.0	0.019	0.012	0.012	0.011	0.032	0.017	0.008	0.005	0.009	0.022	0.015
3	980310	80719	0	0.011	1.0	0.021	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004	0.006
4	980310	91518	0	0.011	1.0	0.019	0.005	0.004	0.004	0.004	0.004	0.008	0.004	0.004	0.003	0.006
5	980310	91720	0	0.011	1.0	0.026	0.003	0.005	0.003	0.004	0.003	0.003	0.004	0.007	0.004	0.006
6	980310	92253	0	0.011	1.0	0.004	0.004	0.004	0.005	0.003	0.004	0.003	0.003	0.004	0.004	0.004
7	980310	101128	0	0.011	1.0	0.012	0.005	0.003	0.003	0.004	0.003	0.003	0.004	0.008	0.004	0.005
8	980310	101325	0	0.011	1.0	0.006	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.002	0.003	0.003
9	980310	101459	0	0.011	1.0	0.003	0.004	0.003	0.003	0.003	0.003	0.002	0.004	0.002	0.003	0.003
10	980310	152901	0	0.011	1.0	0.012	0.004	0.003	0.003	0.003	0.004	0.003	0.004	0.003	0.004	0.004
11	980310	153028	0	0.011	1.0	0.076	0.010	0.008	0.011	0.031	0.023	0.013	0.005	0.014	0.008	0.020
12	980310	153256	0	0.011	1.0	0.007	0.014	0.012	0.007	0.004	0.004	0.004	0.004	0.004	0.005	0.007

Range H

DATE: 06/16/98

521366

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS						AVERAGE READING		
						ONE	TWO	THREE	FOUR	FIVE	SIX		SEVEN	EIGHT
1	980312	75334	0	0.010	1.0	0.005	0.003	0.002	0.003	0.003	0.002	0.003	0.003	0.003
2	980312	75705	0	0.010	1.0	0.019	0.004	0.005	0.003	0.003	0.003	0.002	0.003	0.006
3	980312	94815	0	0.010	1.0	0.009	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.003
4	980312	95043	0	0.010	1.0	0.003	0.002	0.003	0.002	0.002	0.003	0.002	0.003	0.003
5	980312	115301	0	0.010	1.0	0.014	0.005	0.004	0.002	0.003	0.005	0.006	0.004	0.006
6	980312	115526	0	0.010	1.0	0.003	0.004	0.003	0.002	0.003	0.003	0.002	0.002	0.003
7	980312	133857	0	0.010	1.0	0.004	0.004	0.004	0.009	0.009	0.008	0.006	0.003	0.006
8	980312	134043	0	0.010	1.0	0.008	0.009	0.011	0.009	0.027	0.006	0.005	0.008	0.009
9	980312	151302	0	0.010	1.0	0.013	0.026	0.010	0.008	0.006	0.004	0.003	0.010	0.009
10	980312	151435	0	0.010	1.0	0.024	0.008	0.009	0.006	0.003	0.004	0.006	0.011	0.009

Range H

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 521366

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980313	75705	0	0.011	1.0	0.003	0.002	0.010	0.006	0.006	0.006	0.004	0.017	0.008	0.005	0.007
2	980313	80525	0	0.011	1.0	0.006	0.003	0.006	0.004	0.005	0.002	0.002	0.002	0.002	0.003	0.004
3	980313	94101	0	0.011	1.0	0.007	0.003	0.003	0.004	0.011	0.020	0.008	0.006	0.003	0.001	0.007
4	980313	94209	0	0.011	1.0	0.002	0.007	0.016	0.007	0.003	0.002	0.001	0.002	0.002	0.002	0.004
5	980313	110647	0	0.011	1.0	0.022	0.159	0.060	0.009	0.004	0.002	0.013	0.009	0.011	0.005	0.029
6	980313	110756	0	0.011	1.0	0.003	0.004	0.006	0.005	0.012	0.009	0.002	0.016	0.003	0.002	0.006
7	980313	132052	0	0.011	1.0	0.011	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.001	0.003
8	980313	132226	0	0.011	1.0	0.003	0.002	0.001	0.002	0.002	0.003	0.003	0.002	0.001	0.002	0.002
9	980313	152003	0	0.011	1.0	0.011	0.043	0.010	0.039	0.008	0.003	0.002	0.005	0.015	0.005	0.014
10	980313	152526	0	0.011	1.0	0.025	0.018	0.011	0.014	0.008	0.021	0.026	0.019	0.014	0.010	0.017

Range I

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 521366

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980323	74504	0	0.011	1.0	0.009	0.003	0.003	0.003	0.004	0.003	0.005	0.003	0.002	0.002	0.004
2	980323	75105	0	0.011	1.0	0.050	0.004	0.003	0.004	0.003	0.005	0.003	0.004	0.003	0.003	0.008
3	980323	101634	0	0.011	1.0	0.008	0.005	0.003	0.005	0.003	0.004	0.003	0.003	0.003	0.004	0.004
4	980323	102025	0	0.011	1.0	0.023	0.005	0.004	0.006	0.003	0.003	0.003	0.003	0.002	0.003	0.006
5	980323	125109	0	0.011	1.0	0.010	0.005	0.006	0.005	0.003	0.003	0.005	0.005	0.004	0.004	0.005
6	980323	125253	0	0.011	1.0	0.003	0.003	0.003	0.003	0.010	0.008	0.018	0.003	0.002	0.004	0.006
7	980323	151258	0	0.011	1.0	0.036	0.007	0.010	0.013	0.005	0.006	0.004	0.005	0.004	0.004	0.009
8	980323	151528	0	0.011	1.0	0.006	0.003	0.006	0.004	0.005	0.005	0.004	0.024	0.005	0.006	0.007

Range K

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 521366

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980324	80237	0	0.011	1.0	0.006	0.002	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.003
2	980324	81544	0	0.011	1.0	0.013	0.016	0.010	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.006
3	980324	103855	0	0.011	1.0	0.006	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.004	0.010	0.004
4	980324	104038	0	0.011	1.0	0.004	0.005	0.005	0.004	0.004	0.004	0.004	0.018	0.010	0.007	0.007
5	980324	124202	0	0.011	1.0	0.014	0.007	0.006	0.008	0.009	0.006	0.005	0.008	0.011	0.010	0.008
6	980324	124402	0	0.011	1.0	0.005	0.004	0.004	0.003	0.006	0.006	0.004	0.004	0.003	0.004	0.004

Range K

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

521366

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980325	75644	0	0.011	1.0	0.006	0.003	0.003	0.004	0.006	0.004	0.005	0.003	0.004	0.003	0.004
2	980325	80710	0	0.011	1.0	0.007	0.003	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.004
3	980325	96857	0	0.011	1.0	0.013	0.003	0.002	0.002	0.002	0.001	0.002	0.004	0.002	0.002	0.003
4	980325	100016	0	0.011	1.0	0.002	0.002	0.009	0.003	0.002	0.002	0.001	0.003	0.002	0.002	0.003
5	980325	124725	0	0.011	1.0	0.012	0.007	0.002	0.006	0.003	0.015	0.007	0.004	0.002	0.003	0.006
6	980325	124916	0	0.011	1.0	0.002	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002
7	980325	144833	0	0.011	1.0	0.004	0.009	0.004	0.003	0.002	0.002	0.003	0.002	0.002	0.004	0.004
8	980325	145058	0	0.011	1.0	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.003	0.002	0.002

Range V

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 521366

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	READINGS SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980326	74744	0	0.011	1.0	0.005	0.005	0.004	0.006	0.004	0.005	0.004	0.004	0.005	0.005	0.005
2	980326	75122	0	0.011	1.0	0.008	0.008	0.007	0.007	0.007	0.006	0.007	0.006	0.007	0.019	0.008
3	980326	95753	0	0.011	1.0	0.019	0.005	0.006	0.006	0.005	0.006	0.006	0.006	0.005	0.006	0.007
4	980326	95938	0	0.011	1.0	0.026	0.015	0.007	0.005	0.009	0.007	0.007	0.006	0.008	0.008	0.010
5	980326	112334	0	0.011	1.0	0.020	0.039	0.020	0.007	0.005	0.005	0.007	0.006	0.009	0.005	0.012
6	980326	112509	0	0.011	1.0	0.006	0.006	0.006	0.005	0.005	0.006	0.006	0.005	0.006	0.005	0.006
7	980326	161447	0	0.011	1.0	0.006	0.006	0.007	0.006	0.006	0.006	0.006	0.006	0.005	0.006	0.006
8	980326	161551	0	0.011	1.0	0.008	0.006	0.006	0.007	0.006	0.007	0.007	0.008	0.007	0.006	0.007

Range K

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 521366

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980331	75353	0	0.011	1.0	0.017	0.013	0.011	0.010	0.011	0.010	0.012	0.013	0.012	0.010	0.012
2	980331	75906	0	0.011	1.0	0.012	0.010	0.009	0.010	0.010	0.010	0.009	0.011	0.010	0.010	0.010
3	980331	101656	0	0.011	1.0	0.017	0.011	0.011	0.010	0.010	0.011	0.010	0.010	0.010	0.010	0.011
4	980331	101759	0	0.011	1.0	0.009	0.010	0.010	0.010	0.010	0.010	0.009	0.011	0.010	0.009	0.010

Range I - In Situ

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 521366

DATE: 03/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980403	102919	0	0.011	1.0	0.007	0.003	0.003	0.003	0.003	0.004	0.003	0.002	0.003	0.003	0.003
2	980403	103541	0	0.011	1.0	0.007	0.003	0.003	0.003	0.003	0.002	0.004	0.003	0.003	0.003	0.003
3	980403	125316	0	0.011	1.0	0.006	0.008	0.004	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.004
4	980403	125501	0	0.011	1.0	0.004	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002

Range I - In Situ

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 521366

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980406	65203	0	0.011	1.0	0.382	0.029	0.008	0.008	0.008	0.006	0.004	0.008	0.002	0.002	0.046
2	980406	65540	0	0.011	1.0	0.007	0.002	0.002	0.003	0.002	0.002	0.002	0.001	0.002	0.002	0.003
3	980406	85733	0	0.011	1.0	0.125	0.047	0.064	0.060	0.024	0.010	0.006	0.005	0.005	0.003	0.035
4	980406	90046	0	0.011	1.0	0.016	0.005	0.004	0.005	0.010	0.014	0.003	0.004	0.001	0.002	0.006
5	980406	153936	0	0.011	1.0	0.006	0.058	0.006	0.003	0.003	0.003	0.002	0.006	0.002	0.002	0.009
6	980406	154432	0	0.011	1.0	0.016	0.013	0.008	0.002	0.002	0.002	0.002	0.002	0.001	0.003	0.005

Range D

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 521366

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980407	72451	0	0.011	1.0	0.022	0.007	0.007	0.005	0.004	0.006	0.005	0.002	0.002	0.002	0.006
2	980407	103651	0	0.011	1.0	0.007	0.002	0.003	0.001	0.002	0.005	0.002	0.002	0.001	0.001	0.003
3	980407	103757	0	0.011	1.0	0.004	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002

Range 0

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMIR

PARTICULATE MONITORING

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980408	75948	0	0.011	1.0	0.009	0.009	0.002	0.003	0.003	0.002	0.004	0.006	0.001	0.002	0.004
2	980408	80245	0	0.011	1.0	0.003	0.001	0.001	0.002	0.002	0.001	0.006	0.002	0.008	0.004	0.003
3	980408	114858	0	0.011	1.0	0.008	0.003	0.001	0.002	0.003	0.006	0.003	0.002	0.001	0.001	0.003
4	980408	115007	0	0.011	1.0	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001
5	980408	130000	0	0.011	1.0	0.013	0.001	0.002	0.003	0.006	0.005	0.001	0.003	0.002	0.002	0.004
6	980408	130209	0	0.011	1.0	0.001	0.002	0.006	0.005	0.001	0.002	0.002	0.001	0.003	0.006	0.003

Range 4 - Insitu

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND READINGS						NINE	TEN	AVERAGE READING
							TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT		
1	980414	105048	0	0.010	1.0	0.003	0.020	0.003	0.003	0.003	0.004	0.003	0.004	0.002	0.003
2	980414	105406	0	0.010	1.0	0.005	0.003	0.005	0.004	0.004	0.008	0.011	0.003	0.006	0.010
3	980414	125529	0	0.010	1.0	0.003	0.003	0.002	0.003	0.002	0.003	0.002	0.003	0.003	0.002
4	980414	125634	0	0.010	1.0	0.003	0.002	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.002
5	980414	151953	0	0.010	1.0	0.004	0.029	0.003	0.006	0.003	0.002	0.003	0.003	0.002	0.003
6	980414	152058	0	0.010	1.0	0.009	0.008	0.004	0.005	0.005	0.003	0.002	0.002	0.003	0.005

Range 5 - In Situ.

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

PARTICULATE MONITORING																
INSTRUMENT S/N:				0				DATE:				06/16/98				
POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980418	74837	0	0.010	1.0	0.005	0.010	0.010	0.027	0.023	0.050	0.053	0.023	0.009	0.006	0.022
2	980418	75213	0	0.010	1.0	0.004	0.004	0.005	0.004	0.004	0.004	0.005	0.004	0.005	0.004	0.004
3	980418	101418	0	0.010	1.0	0.006	0.005	0.005	0.006	0.005	0.007	0.013	0.009	0.005	0.006	0.007
4	980418	101525	0	0.010	1.0	0.007	0.007	0.008	0.004	0.004	0.003	0.003	0.003	0.004	0.004	0.005
5	980418	130220	0	0.010	1.0	0.009	0.005	0.004	0.004	0.004	0.004	0.003	0.004	0.003	0.004	0.004
6	980418	130330	0	0.010	1.0	0.005	0.004	0.004	0.005	0.005	0.005	0.004	0.005	0.004	0.041	0.008

Range SE

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	SIX SECOND			READINGS			EIGHT	NINE	TEN	AVERAGE READING
							TWO	THREE	FOUR	FIVE	SIX	SEVEN				
1	980421	80039	0	0.010	1.0	0.010	0.006	0.006	0.005	0.006	0.007	0.007	0.004	0.003	0.004	0.006
2	980421	80649	0	0.010	1.0	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.004	0.003	0.003	0.004
3	980421	92750	0	0.010	1.0	0.004	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
4	980421	92856	0	0.010	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
5	980421	111536	0	0.010	1.0	0.004	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.004	0.003	0.003
6	980421	111713	0	0.010	1.0	0.004	0.003	0.003	0.004	0.003	0.004	0.003	0.003	0.003	0.003	0.003
7	980421	145435	0	0.010	1.0	0.013	0.004	0.004	0.004	0.011	0.005	0.005	0.006	0.004	0.004	0.006
8	980421	145544	0	0.010	1.0	0.005	0.004	0.003	0.004	0.004	0.004	0.006	0.012	0.008	0.012	0.006

Range SE

SEVENSON ENVIRONMENTAL SERVICES																	
CAPE COD - MMR																	
PARTICULATE MONITORING																	
INSTRUMENT S/N: 0				DATE: 06/16/98													
POINT	ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980422	80804	0	0.010	1.0	0.010	0.010	0.007	0.011	0.009	0.008	0.008	0.007	0.006	0.006	0.006	0.008
2	980422	81102	0	0.010	1.0	0.007	0.007	0.006	0.009	0.008	0.006	0.005	0.005	0.006	0.005	0.006	0.006
3	980422	101511	0	0.010	1.0	0.006	0.006	0.006	0.005	0.006	0.005	0.004	0.004	0.005	0.004	0.008	0.005
4	980422	101615	0	0.010	1.0	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.005	0.004	0.005	0.004	0.004

Range SE

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980428	83926	0	0.010	1.0	0.003	0.003	0.004	0.007	0.006	0.005	0.003	0.002	0.003	0.003	0.004
2	980428	94128	0	0.010	1.0	0.002	0.002	0.003	0.003	0.003	0.004	0.005	0.005	0.003	0.005	0.004
3	980428	112914	0	0.010	1.0	0.005	0.004	0.003	0.002	0.005	0.002	0.003	0.002	0.002	0.003	0.003
4	980428	113043	0	0.010	1.0	0.002	0.003	0.003	0.003	0.004	0.005	0.002	0.003	0.003	0.002	0.003
5	980428	131243	0	0.010	1.0	0.013	0.005	0.007	0.004	0.003	0.003	0.003	0.005	0.003	0.003	0.005
6	980428	131357	0	0.010	1.0	0.004	0.003	0.002	0.003	0.003	0.002	0.003	0.004	0.003	0.002	0.003
7	980428	160225	0	0.010	1.0	0.040	0.007	0.003	0.004	0.002	0.003	0.003	0.003	0.003	0.002	0.007
8	980428	160333	0	0.010	1.0	0.003	0.002	0.003	0.003	0.003	0.002	0.003	0.003	0.002	0.003	0.003

Range B.

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980429	74226	0	0.010	1.0	0.005	0.003	0.003	0.004	0.003	0.004	0.003	0.004	0.003	0.003	0.004
2	980429	74840	0	0.010	1.0	0.007	0.006	0.006	0.004	0.004	0.003	0.004	0.005	0.005	0.003	0.005
3	980429	95506	0	0.010	1.0	0.009	0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.002	0.004
4	980429	95724	0	0.010	1.0	0.009	0.005	0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004
5	980429	130134	0	0.010	1.0	0.008	0.016	0.036	0.029	0.011	0.005	0.005	0.004	0.004	0.003	0.012
6	980429	130259	0	0.010	1.0	0.004	0.004	0.004	0.003	0.004	0.003	0.003	0.003	0.002	0.004	0.003
7	980429	154130	0	0.010	1.0	0.014	0.012	0.014	0.011	0.011	0.009	0.009	0.008	0.009	0.006	0.010
8	980429	154608	0	0.010	1.0	0.019	0.003	0.003	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.005

Range B

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980430	74748	0	0.010	1.0	0.011	0.009	0.010	0.010	0.011	0.013	0.043	0.013	0.010	0.009	0.014
2	980430	75357	0	0.010	1.0	0.012	0.008	0.009	0.008	0.007	0.009	0.007	0.009	0.009	0.010	0.009
3	980430	92037	0	0.010	1.0	0.012	0.013	0.010	0.010	0.009	0.009	0.009	0.009	0.007	0.008	0.010
4	980430	92145	0	0.010	1.0	0.011	0.009	0.007	0.008	0.010	0.008	0.009	0.008	0.008	0.008	0.009
5	980430	92249	0	0.010	1.0	0.008	0.007	0.007	0.008	0.007	0.008	0.007	0.008	0.007	0.008	0.008
6	980430	125834	0	0.010	1.0	0.029	0.009	0.008	0.009	0.009	0.009	0.009	0.008	0.028	0.008	0.013
7	980430	125942	0	0.010	1.0	0.009	0.009	0.008	0.009	0.009	0.008	0.009	0.008	0.009	0.008	0.009
8	980430	152803	0	0.010	1.0	0.009	0.007	0.008	0.008	0.007	0.009	0.008	0.008	0.008	0.008	0.008
9	980430	153047	0	0.010	1.0	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008

Range B.

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS						AVERAGE READING				
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980508	74112	0	0.010	1.0	0.013	0.007	0.005	0.008	0.003	0.003	0.003	0.004	0.003	0.003	0.005
2	980508	74855	0	0.010	1.0	0.019	0.007	0.002	0.003	0.014	0.013	0.005	0.006	0.004	0.003	0.008
3	980508	91755	0	0.010	1.0	0.005	0.004	0.003	0.002	0.002	0.001	0.001	0.002	0.001	0.001	0.002
4	980508	92222	0	0.010	1.0	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001
5	980508	111439	0	0.010	1.0	0.006	0.003	0.005	0.003	0.003	0.003	0.002	0.003	0.003	0.009	0.004
6	980508	111551	0	0.010	1.0	0.005	0.006	0.004	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.003
7	980508	131805	0	0.010	1.0	0.012	0.005	0.004	0.004	0.005	0.003	0.003	0.002	0.003	0.003	0.004
8	980508	131916	0	0.010	1.0	0.005	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.003	0.003	0.003
9	980508	145644	0	0.010	1.0	0.008	0.005	0.003	0.004	0.003	0.003	0.003	0.005	0.005	0.003	0.004
10	980508	145815	0	0.010	1.0	0.005	0.003	0.003	0.003	0.003	0.003	0.002	0.003	0.003	0.003	0.003

Range B - In Situ

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980512	72645	0	0.010	1.0	0.011	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.003	0.004
2	980512	73409	0	0.010	1.0	0.041	0.005	0.004	0.004	0.005	0.009	0.004	0.004	0.003	0.004	0.008
3	980512	93236	0	0.010	1.0	0.009	0.006	0.006	0.006	0.004	0.005	0.004	0.004	0.007	0.009	0.006
4	980512	93345	0	0.010	1.0	0.005	0.004	0.008	0.004	0.004	0.004	0.003	0.004	0.004	0.004	0.004
5	980512	124336	0	0.010	1.0	0.005	0.004	0.003	0.003	0.003	0.003	0.008	0.004	0.004	0.005	0.004
6	980512	124439	0	0.010	1.0	0.006	0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004
7	980512	141527	0	0.010	1.0	0.008	0.005	0.004	0.004	0.004	0.005	0.004	0.005	0.009	0.006	0.005
8	980512	141633	0	0.010	1.0	0.005	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.005	0.006	0.004
9	980512	161317	0	0.010	1.0	0.010	0.006	0.006	0.005	0.006	0.005	0.005	0.006	0.005	0.005	0.006
10	980512	161509	0	0.010	1.0	0.005	0.005	0.006	0.005	0.005	0.007	0.028	0.011	0.009	0.007	0.009

Range B - Insitu

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND READINGS						TEN	AVERAGE READING
									FOUR	FIVE	SIX	SEVEN	EIGHT	NINE		
1	980512	74748	0	0.027	1.0	0.006	0.008	0.009	0.007	0.006	0.006	0.006	0.005	0.006	0.006	0.007
2	980512	75418	0	0.027	1.0	0.005	0.006	0.006	0.005	0.006	0.006	0.006	0.006	0.005	0.008	0.006
3	980512	95709	0	0.027	1.0	0.009	0.010	0.005	0.006	0.006	0.021	0.006	0.006	0.008	0.007	0.008
4	980512	95827	0	0.027	1.0	0.006	0.006	0.006	0.008	0.014	0.009	0.012	0.007	0.006	0.007	0.008
5	980512	130016	0	0.027	1.0	0.012	0.017	0.021	0.019	0.006	0.006	0.009	0.007	0.052	0.010	0.016
6	980512	130319	0	0.027	1.0	0.004	0.005	0.005	0.005	0.004	0.005	0.004	0.004	0.004	0.005	0.005
7	980512	143015	0	0.027	1.0	0.008	0.011	0.019	0.015	0.011	0.009	0.013	0.010	0.006	0.007	0.011
8	980512	143150	0	0.027	1.0	0.010	0.008	0.015	0.011	0.010	0.008	0.005	0.008	0.007	0.006	0.009
9	980512	155046	0	0.027	1.0	0.009	0.010	0.008	0.008	0.007	0.008	0.007	0.007	0.007	0.010	0.008
10	980512	155426	0	0.027	1.0	0.010	0.007	0.009	0.007	0.009	0.015	0.009	0.008	0.009	0.008	0.009

Range P

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980513	80200	0	0.010	1.0	0.008	0.007	0.005	0.006	0.007	0.007	0.008	0.014	0.004	0.019	0.009
2	980513	80507	0	0.010	1.0	0.004	0.005	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.005	0.004
3	980513	94339	0	0.010	1.0	0.004	0.004	0.004	0.003	0.004	0.004	0.003	0.005	0.004	0.004	0.004
4	980513	94442	0	0.010	1.0	0.004	0.013	0.003	0.004	0.004	0.004	0.003	0.004	0.003	0.004	0.005
5	980513	111217	0	0.010	1.0	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
6	980513	111351	0	0.010	1.0	0.004	0.008	0.004	0.005	0.004	0.004	0.003	0.004	0.005	0.003	0.004
7	980513	135651	0	0.010	1.0	0.012	0.005	0.005	0.005	0.005	0.007	0.009	0.005	0.004	0.004	0.006
8	980513	135757	0	0.010	1.0	0.004	0.006	0.004	0.005	0.008	0.004	0.004	0.005	0.011	0.065	0.012
9	980513	153849	0	0.010	1.0	0.012	0.005	0.005	0.009	0.009	0.012	0.006	0.007	0.006	0.005	0.008
10	980513	154006	0	0.010	1.0	0.012	0.006	0.004	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.005

Range E

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980515	74850	0	0.010	1.0	0.006	0.008	0.007	0.006	0.005	0.006	0.015	0.021	0.027	0.005	0.011
2	980515	75249	0	0.010	1.0	0.008	0.007	0.006	0.005	0.007	0.013	0.013	0.012	0.010	0.040	0.012
3	980515	93154	0	0.010	1.0	0.007	0.006	0.006	0.013	0.013	0.008	0.008	0.007	0.009	0.011	0.009
4	980515	93329	0	0.010	1.0	0.006	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.006	0.006	0.005
5	980515	104950	0	0.010	1.0	0.006	0.006	0.005	0.005	0.005	0.004	0.005	0.005	0.006	0.006	0.005
6	980515	105056	0	0.010	1.0	0.005	0.005	0.004	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.005
7	980515	131258	0	0.010	1.0	0.010	0.021	0.017	0.011	0.026	0.036	0.014	0.010	0.007	0.006	0.016
8	980515	131403	0	0.010	1.0	0.008	0.006	0.007	0.006	0.004	0.004	0.004	0.008	0.009	0.010	0.007

Range 0

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980518	72916	0	0.010	1.0	0.008	0.007	0.008	0.006	0.006	0.006	0.006	0.007	0.008	0.007	0.007
2	980518	73126	0	0.010	1.0	0.006	0.008	0.009	0.007	0.006	0.005	0.006	0.007	0.008	0.007	0.007
3	980518	102926	0	0.010	1.0	0.018	0.014	0.016	0.021	0.014	0.014	0.011	0.010	0.009	0.007	0.013
4	980518	103044	0	0.010	1.0	0.007	0.007	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.006	0.007
5	980518	124238	0	0.010	1.0	0.019	0.017	0.017	0.013	0.014	0.010	0.011	0.012	0.013	0.020	0.015
6	980518	124406	0	0.010	1.0	0.010	0.011	0.011	0.009	0.009	0.010	0.008	0.009	0.008	0.011	0.010
7	980518	152345	0	0.010	1.0	0.012	0.011	0.010	0.011	0.014	0.012	0.012	0.010	0.009	0.009	0.011
8	980518	153014	0	0.010	1.0	0.040	0.043	0.024	0.106	0.058	0.023	0.026	0.016	0.013	0.028	0.038

Range C

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980519	74156	0	0.010	1.0	0.007	0.006	0.007	0.018	0.015	0.025	0.015	0.014	0.022	0.015	0.014
2	980519	74438	0	0.010	1.0	0.007	0.015	0.019	0.020	0.015	0.024	0.018	0.019	0.019	0.017	0.017
3	980519	100304	0	0.010	1.0	0.009	0.006	0.005	0.004	0.006	0.009	0.005	0.004	0.003	0.005	0.006
4	980519	100416	0	0.010	1.0	0.005	0.003	0.003	0.004	0.003	0.005	0.016	0.013	0.024	0.007	0.008
5	980519	125107	0	0.010	1.0	0.007	0.251	0.119	0.011	0.005	0.005	0.004	0.003	0.005	0.005	0.042
6	980519	125306	0	0.010	1.0	0.023	0.030	0.005	0.004	0.004	0.007	0.009	0.004	0.002	0.002	0.009
7	980519	153941	0	0.010	1.0	0.004	0.009	0.005	0.023	0.030	0.031	0.008	0.005	0.009	0.123	0.025
8	980519	154115	0	0.010	1.0	0.021	0.002	0.002	0.005	0.002	0.005	0.015	0.008	0.003	0.005	0.007

Range C

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980520	75039	0	0.010	1.0	0.004	0.004	0.003	0.003	0.002	0.003	0.003	0.012	0.016	0.013	0.006
2	980520	75406	0	0.010	1.0	0.005	0.003	0.005	0.005	0.005	0.008	0.007	0.007	0.007	0.005	0.006
3	980520	93427	0	0.010	1.0	0.021	0.012	0.007	0.005	0.012	0.015	0.016	0.019	0.040	0.008	0.016
4	980520	93608	0	0.010	1.0	0.013	0.007	0.010	0.009	0.006	0.008	0.010	0.006	0.007	0.006	0.008
5	980520	112455	0	0.010	1.0	0.003	0.004	0.009	0.002	0.003	0.002	0.005	0.002	0.003	0.003	0.004
6	980520	112639	0	0.010	1.0	0.074	0.140	0.015	0.003	0.003	0.005	0.005	0.006	0.006	0.007	0.026
7	980520	124719	0	0.010	1.0	0.039	0.052	0.104	0.035	0.023	0.018	0.025	0.029	0.027	0.026	0.038
8	980520	124900	0	0.010	1.0	0.010	0.007	0.004	0.003	0.006	0.036	0.027	0.048	0.013	0.019	0.017
9	980520	154538	0	0.010	1.0	0.025	0.015	0.010	0.011	0.016	0.023	0.045	0.013	0.011	0.007	0.018
10	980520	154914	0	0.010	1.0	0.028	0.030	0.043	0.026	0.012	0.008	0.006	0.005	0.005	0.002	0.017

Range C

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N: 0

DATE: 06/16/98

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	SIX SECOND FIVE	READINGS SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980521	73002	0	0.010	1.0	0.008	0.010	0.014	0.012	0.010	0.008	0.008	0.011	0.012	0.011	0.010
2	980521	73559	0	0.010	1.0	0.009	0.009	0.008	0.010	0.013	0.008	0.013	0.023	0.024	0.011	0.013
3	980521	100613	0	0.010	1.0	0.009	0.024	0.011	0.007	0.015	0.013	0.009	0.009	0.011	0.008	0.012
4	980521	101009	0	0.010	1.0	0.012	0.009	0.008	0.007	0.020	0.008	0.008	0.008	0.008	0.008	0.010

Range C

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980527	100852	0	0.010	1.0	0.005	0.006	0.008	0.005	0.004	0.007	0.010	0.006	0.009	0.008	0.007
2	980527	100809	0	0.010	1.0	0.005	0.006	0.003	0.003	0.004	0.002	0.003	0.004	0.003	0.002	0.004
3	980527	100919	0	0.010	1.0	0.004	0.003	0.004	0.004	0.004	0.002	0.004	0.003	0.004	0.005	0.004
4	980527	101052	0	0.010	1.0	0.006	0.004	0.006	0.009	0.011	0.010	0.005	0.006	0.003	0.004	0.006

Range C

SEVENSON ENVIRONMENTAL SERVICES
CAPE COD - MMR
PARTICULATE MONITORING

INSTRUMENT S/N:			0			PARTICULATE MONITORING										DATE: 06/16/98	
POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	READINGS SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING	
1	980528	74423	0	0.010	1.0	0.027	0.017	0.016	0.014	0.020	0.015	0.014	0.015	0.014	0.013	0.017	
2	980528	74546	0	0.010	1.0	0.022	0.024	0.036	0.082	0.113	0.050	0.017	0.014	0.016	0.013	0.039	
3	980528	94210	0	0.010	1.0	0.027	0.024	0.035	0.061	0.060	0.041	0.031	0.027	0.024	0.019	0.035	
4	980528	94318	0	0.010	1.0	0.017	0.023	0.027	0.027	0.029	0.020	0.018	0.016	0.015	0.015	0.021	
5	980528	110546	0	0.010	1.0	0.081	0.027	0.016	0.011	0.010	0.011	0.011	0.011	0.010	0.009	0.018	
6	980528	110657	0	0.010	1.0	0.010	0.017	0.016	0.009	0.011	0.026	0.019	0.012	0.011	0.010	0.014	
7	980528	141731	0	0.010	1.0	0.032	0.026	0.022	0.022	0.018	0.014	0.012	0.012	0.014	0.014	0.019	
8	980528	141836	0	0.010	1.0	0.014	0.011	0.013	0.011	0.013	0.014	0.013	0.026	0.027	0.029	0.017	

Range C

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980602	80203	0	0.028	1.0	0.008	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.004	0.004
2	980602	80455	0	0.028	1.0	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.002	0.002
3	980602	112031	0	0.028	1.0	0.005	0.003	0.003	0.005	0.003	0.003	0.004	0.002	0.003	0.003	0.003
4	980602	112137	0	0.028	1.0	0.003	0.003	0.002	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.003
5	980602	124930	0	0.028	1.0	0.010	0.004	0.005	0.004	0.009	0.059	0.023	0.028	0.020	0.006	0.017
6	980602	125100	0	0.028	1.0	0.016	0.033	0.033	0.019	0.021	0.032	0.030	0.019	0.013	0.010	0.023
7	980602	155934	0	0.028	1.0	0.014	0.006	0.008	0.008	0.004	0.018	0.006	0.004	0.006	0.006	0.008
8	980602	160720	0	0.028	1.0	0.018	0.012	0.006	0.021	0.025	0.008	0.006	0.005	0.006	0.005	0.011

Range A

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

0

INSTRUMENT S/N:

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	SIX SECOND READINGS										AVERAGE READING
						ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	
1	980604	74000	0	0.010	1.0	0.001	0.003	0.004	0.012	0.005	0.003	0.002	0.001	0.002	0.001	0.003
2	980604	74448	0	0.010	1.0	0.005	0.007	0.006	0.002	0.008	0.009	0.013	0.007	0.004	0.002	0.006
3	980604	92651	0	0.010	1.0	0.007	0.002	0.004	0.011	0.002	0.002	0.008	0.047	0.037	0.021	0.014
4	980604	92813	0	0.010	1.0	0.004	0.005	0.005	0.004	0.004	0.004	0.002	0.003	0.003	0.010	0.004
5	980604	111650	0	0.010	1.0	0.044	0.085	0.068	0.046	0.040	0.053	0.038	0.072	0.025	0.047	0.052
6	980604	111755	0	0.010	1.0	0.022	0.012	0.009	0.010	0.021	0.013	0.009	0.023	0.007	0.004	0.013

Range A.

SEVENSON ENVIRONMENTAL SERVICES

CAPE COD - MMR

PARTICULATE MONITORING

DATE: 06/16/98

INSTRUMENT S/N: 0

POINT ID	DATE	TIME	LOCA- TION	BACK- GROUND	K- VAL	ONE	TWO	THREE	SIX SECOND FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	AVERAGE READING
1	980609	75048	0	0.010	1.0	0.004	0.002	0.002	0.003	0.001	0.002	0.002	0.005	0.006	0.002	0.003
2	980609	75505	0	0.010	1.0	0.004	0.002	0.002	0.002	0.002	0.005	0.002	0.003	0.002	0.002	0.003
3	980609	95319	0	0.010	1.0	0.013	0.009	0.067	0.397	0.218	0.168	0.045	0.072	0.022	0.006	0.102
4	980609	95422	0	0.010	1.0	0.073	0.058	0.032	0.004	0.006	0.004	0.003	0.003	0.003	0.003	0.019
5	980609	124655	0	0.010	1.0	0.049	0.017	0.014	0.036	0.009	0.003	0.001	0.002	0.002	0.001	0.013
6	980609	124817	0	0.010	1.0	0.008	0.005	0.004	0.009	0.005	0.001	0.003	0.004	0.123	0.012	0.017
7	980609	154448	0	0.010	1.0	0.034	0.011	0.006	0.006	0.008	0.006	0.088	0.029	0.011	0.014	0.021
8	980609	154849	0	0.010	1.0	0.008	0.004	0.004	0.004	0.004	0.004	0.006	0.005	0.005	0.005	0.005

Range A.

PHILIP ANALYTICAL SERVICES
ANALYTICAL DATA REPORTS

PHILIP

ANALYTICAL SERVICES**INDUSTRIAL HYGIENE**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

ENVIRONMENTAL TESTING

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

Sean

March 19, 1998

Michael Locke
Sevenson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Laboratory Project: 167867
Client Reference: Job# E-526: Lead by 7105

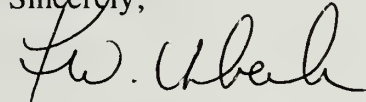
Dear Mr. Locke:

The samples which were logged in on 12-MAR-98 have been analyzed as requested.
The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 18-APR-98,
unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions
concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,



Fred Usbeck, CIH
Director, Laboratory Services

INDUSTRIAL HYGIENE

ENVIRONMENTAL TESTING

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

ANALYTICAL REPORT

Client: Severson Environmental Services
Report to: Michael Locke
Severson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Project: 167867
Received: 12-MAR-98
Reported: 19-MAR-98

PURCHASE ORDER: IE 11164

Project Description: Job# E-526: Lead by 7105

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>211CCEU 1</u>					
Air Volume: 960 L					
Lab Sample: 1296414					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>211CCED 1</u>					
Air Volume: 960 L					
Lab Sample: 1296415					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>211CCED 2</u>					
Air Volume: 960 L					
Lab Sample: 1296416					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>227MMRGU 1</u>					
Air Volume: 652 L					
Lab Sample: 1296417					
Lead, Total	< 0.0003	mg/sample	< 0.0005	mg/m3	7300M
<u>227MMRGD 1</u>					
Air Volume: 656 L					
Lab Sample: 1296418					
Lead, Total	< 0.0003	mg/sample	< 0.0005	mg/m3	7300M



INDUSTRIAL HYGIENE

ENVIRONMENTAL TESTING

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

Client: Severson Environmental Services
Project: 167867

RESULT	UNITS	CONCENTRATION	UNITS	METHOD
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227MMRGD 2

Air Volume: 636 L
Lab Sample: 1296419

Lead, Total	< 0.0003	mg/sample	< 0.0005	mg/m3	7300M
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305MMRGU 1

Air Volume: 506 L
Lab Sample: 1296420

Lead, Total	< 0.0003	mg/sample	< 0.0006	mg/m3	7300M
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305MMRGD 1

Air Volume: 500 L
Lab Sample: 1296421

Lead, Total	< 0.0003	mg/sample	< 0.0006	mg/m3	7300M
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305MMRTP 1

Air Volume: 314 L
Lab Sample: 1296422

Lead, Total	< 0.0003	mg/sample	< 0.0010	mg/m3	7300M
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310 BLANK

Air Volume: 0 L
Lab Sample: 1296423

Lead, Total	< 0.0003	mg/sample			7300M
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310MMRHU 1

Air Volume: 960 L
Lab Sample: 1296424

Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
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310MMRHD 1

Air Volume: 960 L
Lab Sample: 1296425

Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
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PHILIP**ANALYTICAL SERVICES****INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 167867

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>310MMRHD 2</u>					
Air Volume: 960 L					
Lab Sample: 1296426					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>310MMRTU 1</u>					
Air Volume: 960 L					
Lab Sample: 1296427					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>310MMRTD 1</u>					
Air Volume: 960 L					
Lab Sample: 1296428					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>310MMRTD 2</u>					
Air Volume: 960 L					
Lab Sample: 1296429					
Lead, Total	< 0.0003	mg/sample	< 0.0003	mg/m3	7300M
<u>305MMRGD2</u>					
Air Volume: 500 L					
Lab Sample: 1296430					
Lead, Total	< 0.0003	mg/sample	< 0.0006	mg/m3	7300M

Final sample concentrations calculated from air volumes supplied on chain of custody.
< Indicates less than the limit of quantitation.

PHILIP

ANALYTICAL SERVICES

4418 Pottsville Pike
Reading, PA 19605
610-921-8833
1-800-345-4026

INDUSTRIAL HYGIENE REQUEST FORM

PURCHASE ORDER NUMBER

IE 11164

CLIENT INFORMATION

SEVENSON Environmental Services
9245 Calumet ave. Suite 101
MUNSTER, IN. 46321

INVOICE TO:

Same as Client information

LAB REPORT TO:

Same as Client information
ATTN: Mike Locke

NUMBER OF SAMPLES

17

TYPE OF SAMPLES

37mm Cassette

LAB USE ONLY

CLIENT ID NUMBER, AIR VOLUME & ANALYSIS REQUESTED

SPECIAL INSTRUCTIONS

211 CCEU1	—	960 L	LEAD
211 CCED1		960	
211 CCED2		960	
227mmRGU1	—	652	
227mmRGD1		656	
227mmRGD2		636	
305mmRGU1	—	506	
305mmRGD1		500	
305mmRGD2		500	
305mmRTP1		314	
310 Blank	—	0	
310mmRHU1		960	
310mmRHD1		960	
310mmRHD2		960	
310mmRTU1	—	960	
310mmRTD1		960	
310mmRTD2		960	

NIOSH METHOD
#7105

Samples Relinquished by Sampler
(Signature) *[Signature]*

Samples Rec'd. by Courier
(Signature) *[Signature]*

Date

Time

Samples Relinquished by Courier
(Signature)

Samples Rec'd. by Laboratory
(Signature) *[Signature]*

Date

Time

Samples Relinquished for Analysis
(Signature)

Samples Rec'd. for Analysis
(Signature)

Date

Time

Samples Relinquished after Analysis
(Signature)

Analyzed Samples Rec'd. for Retention
(Signature)

Date

Time

NOTES:

Reference Job NO.
E-526

I am submitting these samples for testing, at the regular fee, within the customary turnaround time.

Initial for approval

I request priority handling of these samples, have already scheduled them by telephone, and authorize the additional fee for this service.

Initial for approval



INDUSTRIAL HYGIENE

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

ENVIRONMENTAL TESTING

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

April 1, 1998

Michael Locke
Sevenson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Laboratory Project: 168268
Client Reference: Job #E526

Dear Mr. Locke:

The samples which were logged in on 26-MAR-98 have been analyzed as requested. The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 02-MAY-98, unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,

A handwritten signature in cursive script, appearing to read "Fred Usbeck".

Fred Usbeck, CIH
Director, Laboratory Services

ro: Michael Locke, Sevenson Environmental Services
rc: Aaron Brownell, Sevenson Environmental Services

**INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

ANALYTICAL REPORT

Client: Severson Environmental Services
Report to: Michael Locke
Severson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Project: 168268
Received: 26-MAR-98
Reported: 01-APR-98

PURCHASE ORDER: IE 11164

Copy to: Aaron Brownell, Severson Environmental Services

Project Description: Job #E526

Sampled By: A. Brounell

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>313MMRIP1</u>					
Air Volume: 960 L					
Lab Sample: 1297898					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>317MMRTU1</u>					
Air Volume: 960 L					
Lab Sample: 1297899					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>317MMRTD1</u>					
Air Volume: 960 L					
Lab Sample: 1297900					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>317MMRTD2</u>					
Air Volume: 960 L					
Lab Sample: 1297901					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121

PHILIP

ANALYTICAL SERVICES

INDUSTRIAL HYGIENE

ENVIRONMENTAL TESTING

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 168268

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>323MMRTU1</u>					
Air Volume: 960 L					
Lab Sample: 1297902					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>323MMRTD1</u>					
Air Volume: 960 L					
Lab Sample: 1297903					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>323MMRTD2</u>					
Air Volume: 960 L					
Lab Sample: 1297904					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>323MMRKU1</u>					
Air Volume: 960 L					
Lab Sample: 1297905					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>323MMRKD1</u>					
Air Volume: 960 L					
Lab Sample: 1297906					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>323MMRKD2</u>					
Air Volume: 960 L					
Lab Sample: 1297907					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121

**INDUSTRIAL HYGIENE**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

ENVIRONMENTAL TESTING

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

Client: Severson Environmental Services
Project: 168268

<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
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325BLANK

Air Volume: Blank
Lab Sample: 1297908

Lead, Total	< 0.008	mg/sample		ID121
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Final sample concentrations calculated from air volumes supplied on chain of custody.
< Indicates less than the limit of quantitation.



4418 Pottsville Pike
Reading, PA 19605
610-921-8833
1-800-345-4026

INDUSTRIAL HYGIENE REQUEST FORM

168268 #002

PURCHASE ORDER NUMBER

IE 11164

CLIENT INFORMATION

Sevenson Environmental Services
9245 Calumet Ave. Suite 101
Munster, IN. 46321

INVOICE TO:

Same as Client info.

LAB REPORT TO:

Same as Client info.
Attn. Mike Locke.

NUMBER OF SAMPLES

11

TYPE OF SAMPLES

37mm Cassette

LAB USE ONLY

CLIENT ID NUMBER, AIR VOLUME & ANALYSIS REQUESTED

SPECIAL INSTRUCTIONS

LAB USE ONLY	CLIENT ID NUMBER, AIR VOLUME & ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
313mmRIP1	960 L LEAD	NIOSH METHOD # ~~7105~~ 7105
317mmRTU1	960	
317mmRTD1	960	
317mmRTD2	960	
323mmRTU1	960	
323mmRTD1	960	
323mmRTD2	960	
323mmR KU1	960	
323mmRKD1	960	
323mmRKD2	960	
325Blank	0	

Samples Relinquished by Sampler

(Signature)

Samples Rec'd. by Courier

(Signature)

Date

Time

Samples Relinquished by Courier

(Signature)

Samples Rec'd. by Laboratory

(Signature)

Date

Time

Samples Relinquished for Analysis

(Signature)

Samples Rec'd. for Analysis

(Signature)

Date

Time

Samples Relinquished after Analysis

(Signature)

Analyzed Samples Rec'd. for Retention

(Signature)

Date

Time

NOTES:

PLEASE Reference Job #E526
PLEASE FAX Copy to
Huron Brounell at
508-563-6655.

Thank you.

I am submitting these samples for
testing, at the regular fee, within the
customary turnaround time.

ATB

Initial for approval

I request priority handling of these
samples, have already scheduled them
by telephone, and authorize the addi-
tional fee for this service.

Initial for approval



INDUSTRIAL HYGIENE

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

ENVIRONMENTAL TESTING

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

April 13, 1998

Michael Locke
Sevenson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Laboratory Project: 168686
Client Reference: Job #E526

Dear Mr. Locke:

The samples which were logged in on 09-APR-98 have been analyzed as requested. The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 16-MAY-98, unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. Usbeck".

Fred Usbeck, CIH
Director, Laboratory Services

ro: Michael Locke, Sevenson Environmental Services
rc: Aaron Brownell, Sevenson Environmental Services

**INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

ANALYTICAL REPORT

Client: Severson Environmental Services
Report to: Michael Locke
Severson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Project: 168686
Received: 09-APR-98
Reported: 13-APR-98

PURCHASE ORDER: IE 11329

Copy to: Aaron Brownell, Severson Environmental Services

Project Description: Job #E526

Sampled By: A.B.

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>331MMRTU1</u>					
Air Volume: 960 L					
Lab Sample: 1299605					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>331MMRTD1</u>					
Air Volume: 960 L					
Lab Sample: 1299606					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>331MMRTD2</u>					
Air Volume: 960 L					
Lab Sample: 1299607					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>331MMRIU1</u>					
Air Volume: 660 L					
Lab Sample: 1299608					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121



INDUSTRIAL HYGIENE

ENVIRONMENTAL TESTING

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

Client: Severson Environmental Services
Project: 168686

RESULT	UNITS	CONCENTRATION	UNITS	METHOD
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331MMRID1

Air Volume: 654 L
Lab Sample: 1299609

Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
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331MMRID2

Air Volume: 654 L
Lab Sample: 1299610

Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
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403MMRIP1

Air Volume: 720 L
Lab Sample: 1299611

Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
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406MMRTU1

Air Volume: 960 L
Lab Sample: 1299612

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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406MMRTD1

Air Volume: 960 L
Lab Sample: 1299613

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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406MMRTD2

Air Volume: 960 L
Lab Sample: 1299614

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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406MMROU1

Air Volume: 960 L
Lab Sample: 1299615

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
-------------	---------	-----------	---------	-------	-------

ANALYTICAL SERVICES**INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 168686

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>406MMROD1</u>					
Air Volume: 960 L					
Lab Sample: 1299616					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>406MMROD2</u>					
Air Volume: 960 L					
Lab Sample: 1299617					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>408Blank1</u>					
Air Volume: Blank					
Lab Sample: 1299618					
Lead, Total	< 0.008	mg/sample			ID121

Final sample concentrations calculated from air volumes supplied on chain of custody.
< Indicates less than the limit of quantitation.

168686

PHILIP

ANALYTICAL SERVICES

4418 Pottsville Pike
Reading, PA 19605
610-921-8833
1-800-345-4026

INDUSTRIAL HYGIENE REQUEST FORM

PURCHASE ORDER NUMBER

IE 11329

CLIENT INFORMATION

SEVENSON Environmental Services,
9245 Calumet Ave. Suite 101
MUNSTER, IN. 46321

INVOICE TO:

Same as Client information

LAB REPORT TO:

Same as client information
ATTN: Mike Locke

NUMBER OF SAMPLES

14

TYPE OF SAMPLES

37 mm Cassettes

LAB USE ONLY

CLIENT ID NUMBER, AIR VOLUME & ANALYSIS REQUESTED

SPECIAL INSTRUCTIONS

331mmRTU1	960
331mmRTD1	960
331mmRTD2	960
331mmRIU1	660
331mmRID1	654
331mmRID2	654
403mmRIP1	720
406mmRTU1	960
406mmRTD1	960
406mmRTD2	960
406mmROU1	960
406mmROD1	960
406mmROD2	960
408Blank1	0

LEAD

NIOSH METHOD
7082

Samples Relinquished by Sampler
(Signature) *A. B. ell*

Samples Rec'd. by Courier
(Signature)

Date

Time

Samples Relinquished by Courier
(Signature)

Samples Rec'd. by Laboratory
(Signature) *J. Womer*

Date

Time

Samples Relinquished for Analysis
(Signature)

Samples Rec'd. for Analysis
(Signature)

Date

Time

Samples Relinquished after Analysis
(Signature)

Analyzed Samples Rec'd. for Retention
(Signature)

Date

Time

NOTES:

Reference Job # E526
PLEASE FAX Copy to
Aaron Brownell at
508-563-6655

I am submitting these samples for
testing, at the regular fee, within the
customary turnaround time.

A. B. ell

Initial for approval

I request priority handling of these
samples, have already scheduled them
by telephone, and authorize the addi-
tional fee for this service.

Initial for approval

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

May 4, 1998

Michael Locke
Sevenson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Laboratory Project: 169311
Client Reference: Job #E526
Lead by NIOSH 7082

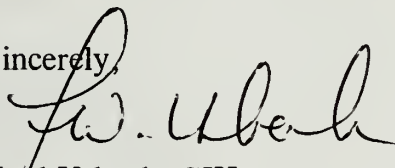
Dear Mr. Locke:

The samples which were logged in on 30-APR-98 have been analyzed as requested. The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 06-JUN-98, unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,



Fred Usbeck, CIH
Director, Laboratory Services

ro: Michael Locke, Sevenson Environmental Services
rc: Aaron Brownell, Sevenson Environmental Services

INDUSTRIAL HYGIENE**ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

ANALYTICAL REPORT

Client: Severson Environmental Services

Report to: Michael Locke
Severson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Project: 169311
Received: 30-APR-98
Reported: 04-MAY-98

PURCHASE ORDER: IE 11274

Copy to: Aaron Brownell, Severson Environmental Services

Project Description: Job #E526
Lead by NIOSH 7082

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>418mmRTU1</u>					
Air Volume: 782 L					
Lab Sample: 1302480					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
<u>418mmRTD1</u>					
Air Volume: 792 L					
Lab Sample: 1302481					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
<u>418mmRTD2</u>					
Air Volume: 792 L					
Lab Sample: 1302482					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
<u>418mmRSEU1</u>					
Air Volume: 808 L					
Lab Sample: 1302483					
Lead, Total	< 0.008	mg/sample	< 0.010	mg/m3	ID121

INDUSTRIAL HYGIENE

ENVIRONMENTAL TESTING

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 169311

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>418mmRSED1</u>					
Air Volume: 780 L					
Lab Sample: 1302484					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
<u>418mmRSED2</u>					
Air Volume: 780 L					
Lab Sample: 1302485					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
<u>418mmRSEP1</u>					
Air Volume: 634 L					
Lab Sample: 1302486					
Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
<u>421mmRTU1</u>					
Air Volume: 960 L					
Lab Sample: 1302487					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>421mmRTD1</u>					
Air Volume: 960 L					
Lab Sample: 1302488					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>421mmRTD2</u>					
Air Volume: 960 L					
Lab Sample: 1302489					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>421mmRSEU1</u>					
Air Volume: 840 L					
Lab Sample: 1302490					
Lead, Total	< 0.008	mg/sample	< 0.010	mg/m3	ID121

PHILIP**ANALYTICAL SERVICES****INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 169311

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>421mmRSED1</u>					
Air Volume: 850 L					
Lab Sample: 1302491					
Lead, Total	< 0.008	mg/sample	< 0.009	mg/m3	ID121
<u>421mmRSED2</u>					
Air Volume: 858 L					
Lab Sample: 1302492					
Lead, Total	< 0.008	mg/sample	< 0.009	mg/m3	ID121
<u>428mmRTU1</u>					
Air Volume: 960 L					
Lab Sample: 1302493					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>428mmRTD1</u>					
Air Volume: 960 L					
Lab Sample: 1302494					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>428mmRTD2</u>					
Air Volume: 960 L					
Lab Sample: 1302495					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>428mmRBU1</u>					
Air Volume: 960 L					
Lab Sample: 1302496					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>428mmRBD1</u>					
Air Volume: 960 L					
Lab Sample: 1302497					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121

PHILIP**ANALYTICAL SERVICES****INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 169311

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>428mmRBD2</u>					
Air Volume: 960 L					
Lab Sample: 1302498					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>428mmRBP1</u>					
Air Volume: 960 L					
Lab Sample: 1302499					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>429Blank1</u>					
Air Volume: blank					
Lab Sample: 1302500					
Lead, Total	< 0.008	mg/sample			ID121

Final sample concentrations calculated from air volumes supplied on chain of custody.

< Indicates less than the limit of quantitation.

PHILIP

ANALYTICAL SERVICES

4418 Pottsville Pike
Reading, PA 19605
610-921-8833
1-800-345-4026

INDUSTRIAL HYGIENE REQUEST FORM

PURCHASE ORDER NUMBER

IE ~~#529~~ 11274

CLIENT INFORMATION

SEVENSON Environmental Services
9245 Calumet ave. Suite 101
Munster, IN. 46321

INVOICE TO:

Same as Client information

LAB REPORT TO:

Same as Client information
ATTN: Mike Locke

NUMBER OF SAMPLES

21

TYPE OF SAMPLES

37mm filter Cassettes

LAB USE ONLY

CLIENT ID NUMBER, AIR VOLUME & ANALYSIS REQUESTED

SPECIAL INSTRUCTIONS

418mmRTU1	782
418mmRTD1	792
418mmRTD2	792
418mmRSEU1	808
418mmRSED1	780
418mmRSED2	780
418mmRSEP1	634
421mmRTU1	960
421mmRTD1	960
421mmRTD2	960
421mmRSEU1	840
421mmRSED1	850
421mmRSED2	858
428mmRTU1	960
428mmRTD1	960
428mmRTD2	960
428mmRBU1	960
428mmRBD1	960
428mmRBD2	960
428mmRBP1	960
~~428mmRBP2~~ ATB	
429 Blank 1	0

Samples Relinquished by Sampler
(Signature) *[Signature]*

Samples Rec'd. by Courier
(Signature) *[Signature]*

Date

Time

4/29/98

1600

Samples Relinquished by Courier
(Signature) *[Signature]*

Samples Rec'd. by Laboratory
(Signature) *[Signature]*

Date

Time

4-30-98

1000

Samples Relinquished for Analysis
(Signature)

Samples Rec'd. for Analysis
(Signature)

Date

Time

Samples Relinquished after Analysis
(Signature)

Analyzed Samples Rec'd. for Retention
(Signature)

Date

Time

NOTES:

PLEASE Reference Job
#ES26
PLEASE FAX COPY to
Aaron Brownell at
508-563-6655

I am submitting these samples for testing, at the regular fee, within the customary turnaround time.

[Signature]
Initial for approval

I request priority handling of these samples, have already scheduled them by telephone, and authorize the additional fee for this service.

[Signature]
Initial for approval

508-563-8989

PLEASE REMEMBER TO INCLUDE PURCHASE ORDER NUMBER

CLIENT TO RETAIN PART 2 OF FORM

PHILIP

ANALYTICAL SERVICES

INDUSTRIAL HYGIENE

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

ENVIRONMENTAL TESTING

- NY DOH 10903
- PA DER 06-353
- NJ DEP 77678

June 11, 1998

Michael Locke
Sevenson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Laboratory Project: 170308
Client Reference: Job #526E/#005 (Lead by ID 121)

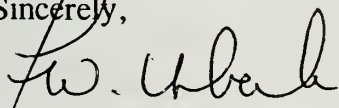
Dear Mr. Locke:

The samples which were logged in on 04-JUN-98 have been analyzed as requested. The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 11-JUL-98, unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,



Fred Usbeck, CIH
Director, Laboratory Services

INDUSTRIAL HYGIENE**ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

ANALYTICAL REPORT

Client: Severson Environmental Services

Report to: Michael Locke
Severson Environmental Services
9245 Calumet Avenue
Suite 101
Munster IN 46321

Project: 170308
Received: 04-JUN-98
Reported: 11-JUN-98

PURCHASE ORDER: IE 15217

Project Description: Job #526E/#005 (Lead by ID 121)

<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
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508 MMRTU 1

Air Volume:
Lab Sample: 1307077

Lead, Total	0.011	mg/sample		ID121
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508 MMRTD 1

Air Volume: 884 L
Lab Sample: 1307078

Lead, Total	0.008	mg/sample	0.009	mg/m3	ID121
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508 MMRTD 2

Air Volume: 884 L
Lab Sample: 1307079

Lead, Total	< 0.008	mg/sample	< 0.009	mg/m3	ID121
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508 MMRBU 1

Air Volume: 160 L
Lab Sample: 1307080

Lead, Total	< 0.008	mg/sample	< 0.05	mg/m3	ID121
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508 MMRBD 1

Air Volume: 682 L
Lab Sample: 1307081

Lead, Total	< 0.008	mg/sample	< 0.01	mg/m3	ID121
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PHILIP**ANALYTICAL SERVICES****INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

- EPA/NVLAP 101262-0
- AIHA ACCREDITATION NO. 8707

- NY DOH 10903
- PA DER 06-353

- NJ DEP 77678

Client: Severson Environmental Services
Project: 170308

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>508 MMRBD 2</u>					
Air Volume: 864 L					
Lab Sample: 1307082					
Lead, Total	< 0.008	mg/sample	< 0.009	mg/m3	ID121
<u>512 MMRPU 1</u>					
Air Volume: 960 L					
Lab Sample: 1307083					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>512 MMRPD 1</u>					
Air Volume: 960 L					
Lab Sample: 1307084					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>512 MMRPD 2</u>					
Air Volume: 960 L					
Lab Sample: 1307085					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>512 MMRBU 1</u>					
Air Volume: 960 L					
Lab Sample: 1307086					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>512 MMRBD 1</u>					
Air Volume: 960 L					
Lab Sample: 1307087					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
<u>512 MMRBD 2</u>					
Air Volume: 960 L					
Lab Sample: 1307088					
Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121

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<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
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518 MMRTU 1

Air Volume: 960 L
Lab Sample: 1307089

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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518 MMRTD 1

Air Volume: 1018 L
Lab Sample: 1307090

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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518 MMRTD 2

Air Volume: 1018 L
Lab Sample: 1307091

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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518 MMRCU 1

Air Volume: 960 L
Lab Sample: 1307092

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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518 MMRCD 1

Air Volume: 960 L
Lab Sample: 1307093

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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518 MMRCD 2

Air Volume: 960 L
Lab Sample: 1307094

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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527 MMRCU 1

Air Volume: 318 L
Lab Sample: 1307095

Lead, Total	< 0.008	mg/sample	< 0.03	mg/m3	ID121
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Client: Severson Environmental Services
Project: 170308

	<u>RESULT</u>	<u>UNITS</u>	<u>CONCENTRATION</u>	<u>UNITS</u>	<u>METHOD</u>
<u>527 MMRC D 1</u>					
Air Volume: 318 L					
Lab Sample: 1307096					
Lead, Total	< 0.008	mg/sample	< 0.03	mg/m3	ID121

527 MMRC D 2
Air Volume: 318 L
Lab Sample: 1307097

Lead, Total	< 0.008	mg/sample	< 0.03	mg/m3	ID121
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527 MMRC P 1
Air Volume: 330 L
Lab Sample: 1307098

Lead, Total	< 0.008	mg/sample	< 0.02	mg/m3	ID121
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602 MMRTU 1
Air Volume: 960 L
Lab Sample: 1307099

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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602 MMRTD 1
Air Volume: 960 L
Lab Sample: 1307100

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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602 MMRTD 2
Air Volume: 960 L
Lab Sample: 1307101

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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602 MMRAU 1
Air Volume: 960 L
Lab Sample: 1307102

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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PHILIP**ANALYTICAL SERVICES****INDUSTRIAL HYGIENE****ENVIRONMENTAL TESTING**

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Client: Severson Environmental Services
Project: 170308

RESULTUNITSCONCENTRATIONUNITSMETHOD**602 MMRAD 1**

Air Volume: 960 L

Lab Sample: 1307103

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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602 MMRAD 2

Air Volume: 960 L

Lab Sample: 1307104

Lead, Total	< 0.008	mg/sample	< 0.008	mg/m3	ID121
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603 Blank 1

Air Volume: 0 L

Lab Sample: 1307105

Lead, Total	< 0.008	mg/sample			ID121
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Final sample concentrations calculated from air volumes supplied on chain of custody.

< Indicates less than the limit of quantitation.

PHILIP

ANALYTICAL SERVICES

4418 Pottsville Pike
Reading, PA 19605
610-921-8833
1-800-345-4026

INDUSTRIAL HYGIENE REQUEST FORM

PURCHASE ORDER NUMBER

IE 15217

CLIENT INFORMATION

SEVENSON Environmental Services
9245 Calumet ave. Suite 101
MUNSTER, IN. 46321

INVOICE TO:

Same as Client information

LAB REPORT TO:

Same as Client information
ATTN: Mike Locke.

NUMBER OF SAMPLES

29

TYPE OF SAMPLES

37 mm Filter Cassettes

LAB USE ONLY

CLIENT ID NUMBER, AIR VOLUME & ANALYSIS REQUESTED

SPECIAL INSTRUCTIONS

508mmRTu1	898
508mmRTD1	884
508mmRTD2	884
508mmRBu1	160
508mmRBD1	682
508mmRBD2	864
512mmRPU1	960
512mmRPD1	960
512mmRPD2	960
512mmRBu1	960
512mmRBD1	960
512mmRBD2	960
518mmRTu1	960
518mmRTD1	960
518mmRTD2	1018
518mmRCu1	1018
518mmRCD1	960
518mmRCD2	960
527mmRCu1	318
527mmRCD1	318
527mmRCD2	318
527mmRCP1	330
602mmRTu1	960
602mmRTD1	960
602mmRTD2	960
602mmRAU1	960
602mmRAD1	960
602mmRAD2	960
603Blank1	0

LEAD

USE METHOD
ID 121.

Samples Relinquished by Sampler

(Signature)

Samples Rec'd. by Courier

(Signature)

Date

6/3/98

Time

Samples Relinquished by Courier

(Signature)

Samples Rec'd. by Laboratory

(Signature)

Date

6/4/98

Time

0910

Samples Relinquished for Analysis

(Signature)

Samples Rec'd. for Analysis

(Signature)

Date

Time

Samples Relinquished after Analysis

(Signature)

Analyzed Samples Rec'd. for Retention

(Signature)

Date

Time

NOTES:

Reference Job #526E

I am submitting these samples for testing, at the regular fee, within the customary turnaround time.

ATB

Initial for approval

I request priority handling of these samples, have already scheduled them by telephone, and authorize the additional fee for this service.

Initial for approval

APPENDIX C

PHOTOGRAPHIC DOCUMENTATION



Central Processing Area - Prior to Contractor Mobilization to Site



Central Processing Area - Ex-Situ Processing Equipment Operating



Central Processing Area - Ex-Situ Processing System



Central Processing Area - Ex-Situ Processing System Material Retained on 2-inch Screen



Central Processing Area - Ex-Situ Processing System Material Retained on No. 4 Screen



Central Processing Area - Ex-Situ Processing System Processed Soil Output



Central Processing Area - Stockpiles of Oversize Rock from Screening



Central Processing Area - Stockpiles of Material Retained on the No. 4 Screen



Central Processing Area - Ex-Situ Processed Soil Stockpile



Central Processing Area - After Completion of Demobilization Activities



In-Situ Processing - Excavation of Soils For Processing



In-Situ Processing - Addition of MAECTITE to Soils to be Processed



In-Situ Processing - Blending of Soils and MAECTITE



Range A - Pre-Excavation



Range A - During Excavation



Range A - Post-Excavation



Range A - Oversize Rock Being Sprayed with MAECTITE



Range B - Pre-Excavation



Range B - During Excavation



Range B - During Berm Reconstruction



Range B - During Berm Reconstruction



Range B - Berm Reconstruction Completed



Range C - Pre-Excavation



Range C - During Excavation



Range C - During Berm Reconstruction



Range C - Berm Reconstruction Completed



Range D - Pre-Excavation



Range D - During Excavation



Range D - Post-Excavation



Range E - Pre-Excavation



Range E - During Excavation



Range E - Excavation of Pop-up Target Protectors



Range E - Post-Excavation



Range E - Oversize Rocks Sprayed with MAECTITE



Range G - Pre-Excavation



Range G - During Excavation



Range G - Post-Excavation



Range H - Pre-Excavation



Range H - During Excavation



Range H - Post-Excavation



Range I - Pre-Excavation



Range I - During Excavation



Range I - UXO Encountered During Excavation



Range I - Remnants of UXO After EOD Demolition In-Place at Toe of Secondary Berm



Range I - Post-Excavation



Range J - Pre-Excavation



Range J - During Excavation



Range J - Drums Encountered During Excavation of Left Side of Berm



Range J - Post-Excavation



Range K - Pre-Excavation



Range K - During Excavation



Range K - Post-Excavation



Range KD - Pre-Excavation



Range KD - During Grubbing and Chipping of Vegetation on Berm



Range KD - Post-Excavation



Range N - Pre-Excavation



Range N - During Excavation



Range N - Post-Excavation



Range O - Pre-Excavation



Range O - During Excavation



Range O - Suspected UXO Related Materials Encountered During Excavation



Range O - Suspected UXO Related Materials Encountered During Excavation



Range O - Post-Excavation



Range P - Pre-Excavation



Range P - During Excavation



Range P - Post-Excavation



Range SE/SW - Pre-Excavation



Range SE/SW - During Excavation of Target Pop-Up Protectors

